"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERSAK, N. I. Cand Tech Sci -- (diss) "Study of the development of 475°-brittleness in the metals of chrome-nickel welded seams with austenite-ferrite structure." Kiev, 1959. 24 pp with illustrations (Min of Higher Education UkSSR, Kiev Order of Lenin Polytechnic Inst), 100 copies (KL, 46-59, 137)

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SOV/125-59-1-7/15

25(1)

AUTHOR: Kopersak, N.I.

TITLE: The Determination of α-Phase Content in the Austenite Welded Butts by Means of the Magnetic Method (Opredeleniye soderzhaniya α-fazy v austenitnykh svarnykh shvakh magnitnym metodom)

PERIODICAL: Avtomaticheskaya svarka, 1959, Nr 1, p 43-48(USSR)

ABSTRACT: The author describes the magnetic method for determining α-phases. He proposes an empirical formula designed for the calculation of the intensity of magnetization saturation of multi-alloyed ferrite, taking into consideration the influence of basic alloying elements. The formula allows the use of the Armco-iron standards for determining the quantity of α-phases in the austenite welded butt metal by means of the magnetic method. The author gives experimental data proving the correctness of the proposed formula.

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KOPERSAK, N.I.

Magnetic method for determining the ferrite phase in welded seam. Zav. lab. no.11:1323-1324 '59. (MIRA 13:4)

1.Kiyevskiy politekhnicheskiy institut.
(Ferrite)

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18(7) SOV/125-59-5-8/16

AUTHOR: Dyatlov, V.I., Candidate of Technical Sciences, and Kopersak, N.I., Engineer

TITLE: On the Brittle Nature of Chrome-Nickel Stainless Steel at 475°C

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 5 (74) pp 66-82 (USSR)

ABSTRACT: The article presents a discussion on the development of brittleness ar 475°C in the weld metal containing 27.8% Cr and 9.7% Ni (65% α-phase). Described are the theories of Heger (Ref. 4) and Cina and of Lavender (Ref.8). The works of Lena and Hawkens (Ref. 2,3), Becket (Ref. 11), Zapffe and others (Ref. 7), Gosso (Ref. 6) and Newell (Ref. 13) are discussed. Some parts of the works of Kintzel and Franks are also presented. An experimental investigation of the alternating of microstructure, the impact strength, the microhardness of the ferrite and austenite phase and of the magnetic saturation were made. Investigated were also the deve-

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On the Brittle Nature of Chrome-Nickel Stainless Steel at 475°C

lopment of Homogenization, the micro structure, microhardness and impact strength after heat treatment. For the investigation a weld metal was used, which was gotten by multiplied welding of steel 1 Kh/9N9T with wire type Co-OKh18N9. The welding was done under keramic flux and the following conditions: I = 600 -650 A, U = 28 -30 V, V = 25 m/h. The alternating of the microstructure of the metal was made by electrolytic etching in 10% oxalic acid (Fig. 2,3). To the authors there seems to be a possibility to set up following hypothesis, with the results of the experiment on the 475°-embrittlement: The brittle condition is caused by a process of interphase redistribution of the chrome in high alloyed chrome -iron, without separation of the surplus phases. There exists a narrow connection between the 475°C- brittleness and the development of σ-phase, which takes place at a higher temperature. The interphase redistribution of chrome, which causes the 475°-embrittlement, can be regarded as an "incuba-

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59

SOV/125-[illegible]-5-8/16

On the Brittle Nature of Chrome-Nickel Stainless Steel at 475°C

tion" of the development of -phae. To eleminate the 475°C-brittleness, only the same way as eliminating the -phase is possible: To heat to temperature higher than 1000°C with added speedy cooling (Fig.5). There are 5 graphs, 5 figures, 2 tables and 15 references, 5 of which are Soviet, 7 English, 2 German and 1 French

ASSOCIATION: Kiyevskiy ordena Lenina politekhnicheskiy institut (Kiyev Polytechnical Institute of the Order of Lenin).

SUBMITTED: February 11, 1959

Card 3/3

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27033

S/125/61/000/004/002/013
A161/A127

1.2300
18.8200

AUTHOR: Kopersak, N. I.

TITLE: Effect of the alpha-phase content in austenite-ferritic weld metal on the development of 475°-brittleness

PERIODICAL: Avtomaticheskaya svarka, no. 4, 1961, 13 - 17

TEXT: Results are given of experiments with the α-phase content in two-phase metal varied between 0 and 65%. One series of specimens was prepared using Св-0Х18Н9 (Sv-0Kh18N9) wire 5 mm in diameter and additional alloying with Cr through the flux, and a second series with Sv-0Kh18N9 and three other wire grades with different nickel contents. Direct current with inverse polarity was used for all specimens. The series of alloying ceramic fluxes was composed using the slag-forming base of the K-8 flux for the base [Ref. 2: G. Bandel and W. Tofaube, Die Versprödung von hochlegierten Chromstählen im Temperaturgebiet um 500°, Archiv für das Eisenhüttenwesen, v. 15, no. 7, 1942]. The ferrite content in the deposited metal was determined with a D. C. Shteynberg magnetometer using the method described in same publication (Ref. 2). The embrittlement was determined by the relative reduction of the notch toughness in the brittle state. Notched specimens

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Effect of the alpha-phase content in...

fect on the degree of embrittlement. 3) The drop of notch toughness in specimens with above 13 - 15% α-phase is determined by Cr content (in ferrite). The higher the Cr content, the lower will be the notch toughness as a result of 475°-embrittlement. There are 2 figures, 4 tables and 4 references: 1 Soviet-bloc and 3 non-Soviet-bloc. The reference to an English-language publication reads as follows: B. Cina and G. D. Lavender, The 475°C Hardness Characteristics of Some High-Alloy Steels and Chromium Irons, "Journal of the Iron and Steel Institute", v. 174, part 2, no. 6, 1953.

ASSOCIATION: Kyevskiy Ordena Lenina Politekhnicheskiy institut (Kiev "Order of Lenin" Polytechnic Institute)

SUBMITTED: November 1, 1960

Card 3/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERSAK, N.I., kand.tekhn.nauk

Characteristics of a 475° brittleness in stainless steel. Metalloved. i term. obr. met. no.9:34-40 S '62. (MIRA 16:5)

1. Kiyevskiy politekhnicheskiy institut.
(Steel, Stainless—Brittleness) (Metals at high temperatures)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

S/032/62/028/008/007/014
B104/B102

AUTHOR: Kopersak, N. I.

TITLE: Metallographic determination of the 475-degree brittleness state in austenitic-ferritic chrome-nickel welding seams

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 8, 1962, 968 - 969

TEXT: In austenitic-ferritic chrome-nickel steels with more than 13% Cr, brittleness occurs at annealing temperatures of about 475°C. For metallographic proof of this brittleness the auhtor etched samples electrolytically in 10% solutions of oxalic acid in water using 0.1 - 0.2 a/cm^2, 5 - 7 v, for 5 - 10 sec. The ferritic phase in samples without 475-degree brittleness is of feintly blue color, whereas the ferritic phase in samples with this brittleness is brown. There is 1 figure.

ASSOCIATION: Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

ZHDANOV, I.M., inzh.; KOPERSAK, N.I., kand.tekhn.nauk

Distribution of lateral deformations along the welded seam in a butt joint. Mashinostroenie no.4:71-74 Jl-Ag '63. (MIRA 17:2)

1. Kiyevskiy ordena Lenina politekhnicheskiy institut.

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L 14953-63 EWP(k)/EWP(q)/EWT(m)/BDS AFFTC/ASD Pf-4 JD/HM/WB

ACCESSION NR: AP3001115 S/0125/63/000/007/0015/0020 67

AUTHOR: Kopersak, N. I. 65

TITLE: Effect of alloying elements on the 475C embrittlement of austenitic-ferritic weld metal

SOURCE: Avtomaticheskaya svarka, no. 7, 1963, 15-20

TOPIC TAGS: stainless-steel-weld 475C embrittlement, austenitic-ferritic-weld-metal embrittlement, ferrite-embrittlement effect, 475C embrittlement, stainless-steel weld, stainless-steel-weld alloying

ABSTRACT: The effect of alloying elements on the 475C embrittlement of austenitic-ferritic weld metal has been studied. Experimental submerged-arc welds (deposits and V-joints) were made on IKh18N9T [AISI 321] stainless steel plates with electrode wires of OKh18N9 [AISI 302], EI-606 [0.07% C, 20% Cr, 10% Ni, 2.2—2.7% V, 1—2% Mn, 1.3—1.8% Si], Kh22N15 [AISI 309], Kh25N20 [AISI 310], or Kh20N10G6 [0.12% C, 5—7% Mn, 1% Si, 18—22% Cr, 9—11% Ni]. The weld metal contained 17.8%—23.6% Cr and 8.20—12.32% Ni and (added through flux separately or in combination) 0.86—1.63% Mo, 0.52—1.66% Si, 1.04—2.36% W, 1.41—3.20% Mn, and 1.00—1.56% V.

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L 14953-63

ACCESSION NR: AP3001115 2

The flat deposits contained 1.3—66.0% ferrite; the V-welds, 1.5—11.7% ferrite. The Mesnager notched bars cut from the weld metal were held at 475C for up to 2000 hr. Results of impact tests showed that susceptibility to embrittlement at 475C can be reduced by lowering the content of the α-phase. Alloying of the weld metal with Mo, V, W, Si, or Mn does not eliminate the 475C embrittlement of the weld metal. On the contrary, all alloying additions accelerated the embrittlement process and lowered the notch toughness. However, at α-phase contents below 10% the detrimental effect of alloying elements was less pronounced. Chromium appears to be the most harmful element, and the 475C embrittlement can be reduced by lowering the chromium content. The amount of α-phase needed to prevent intergranular corrosion and hot cracking of welds can be maintained by alloying the weld metal with other ferrite formers. Orig. art. has: 2 tables and 4 figures.

ASSOCIATION: Kievskiy politekhnicheskiy institut (Kiev Polytechnic Institute)

SUBMITTED: 09Oct62 DATE ACQ: 02Aug63 ENCL: 00

SUB CODE: ML NO REF SOV: 002 OTHER: 004

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

BONCZAK, Jerzy; KOPERSKA, Krystyna

Analysis of cases of Trichuris trichiura. Wiad. parazyt. 11 no.1:25-29 '65

1. Poradnia Schorzeń Jelitowych i Laboratorium Bakteriologiczno-Parazytologiczne, Warszawa.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

ADONAJLO, Aniela; BONCZAK, Jerzy; KOPERSKA, Krystyna

Ambulatory control of lambliasis. Wiadomosci parazyt. 8 no.4:475-479 '62.

1. Poradnia Schorzen Jelitowych, Warszawa.
(GIARDIASIS prev & control) (HOSPITAL OUTPATIENT SERVICE)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

ROTTER, Andrzej; MICHONICZ, Jozef; KOPERSKA-ROTTEROWA, Barbara

Value of Sulkowitch reaction for the determination of calcium concentration in the blood and urine. Polski tygod. lek. 14 no.31: 1453-1456 3 Aug 59

1. (Z II Kliniki: Chorob Wewnetrznych A. M. we Wroclawiu: kierownik: prof. dr med. Antoni Falkiewicz)
(CALCIUM, chem.)

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KOPERSKI, B.

Slag-finished racing tracks and racing safety. Motor 11 no.36: 13 9 S '62.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KRUPKOWSKI, Aleksander, prof., dr.,inz.; KOPERSKI, Stanislaw,mgr.,inz.

The problem of reducing metal oxides with carbon oxide and carbon. Rudy i metale 7 no.3:101-106 '62.

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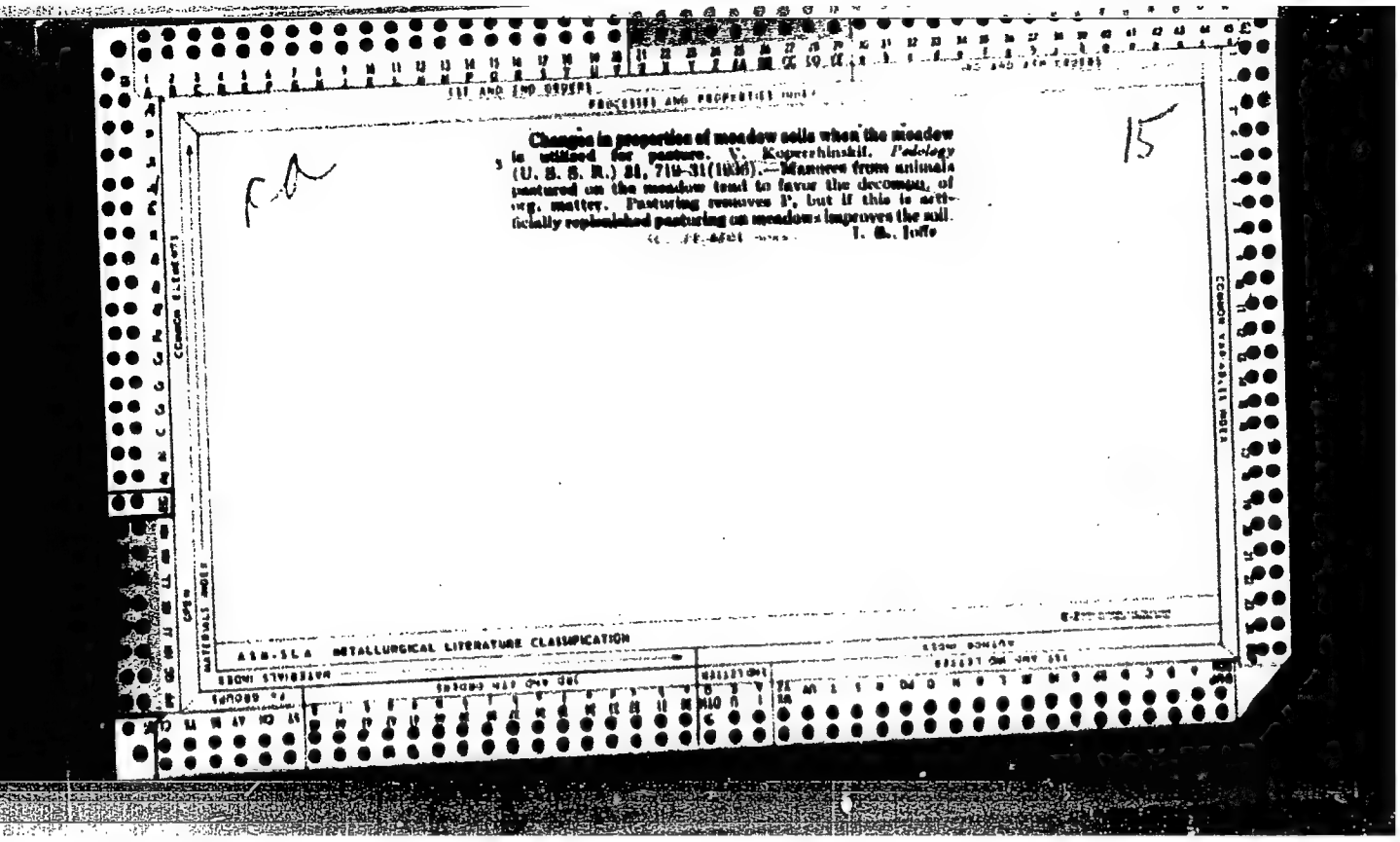

Changes in properties of meadow soils when the meadow is utilized for pasture. V. Kuperzhinskii. *Pedology* (U. S. S. R.) 33, 719-31(1931).—Manures from animals pastured on the meadow tend to favor the decompn. of org. matter. Pasturing removes P, but if this is artificially replenished pasturing on meadows improves the soil. T. G. Info

15

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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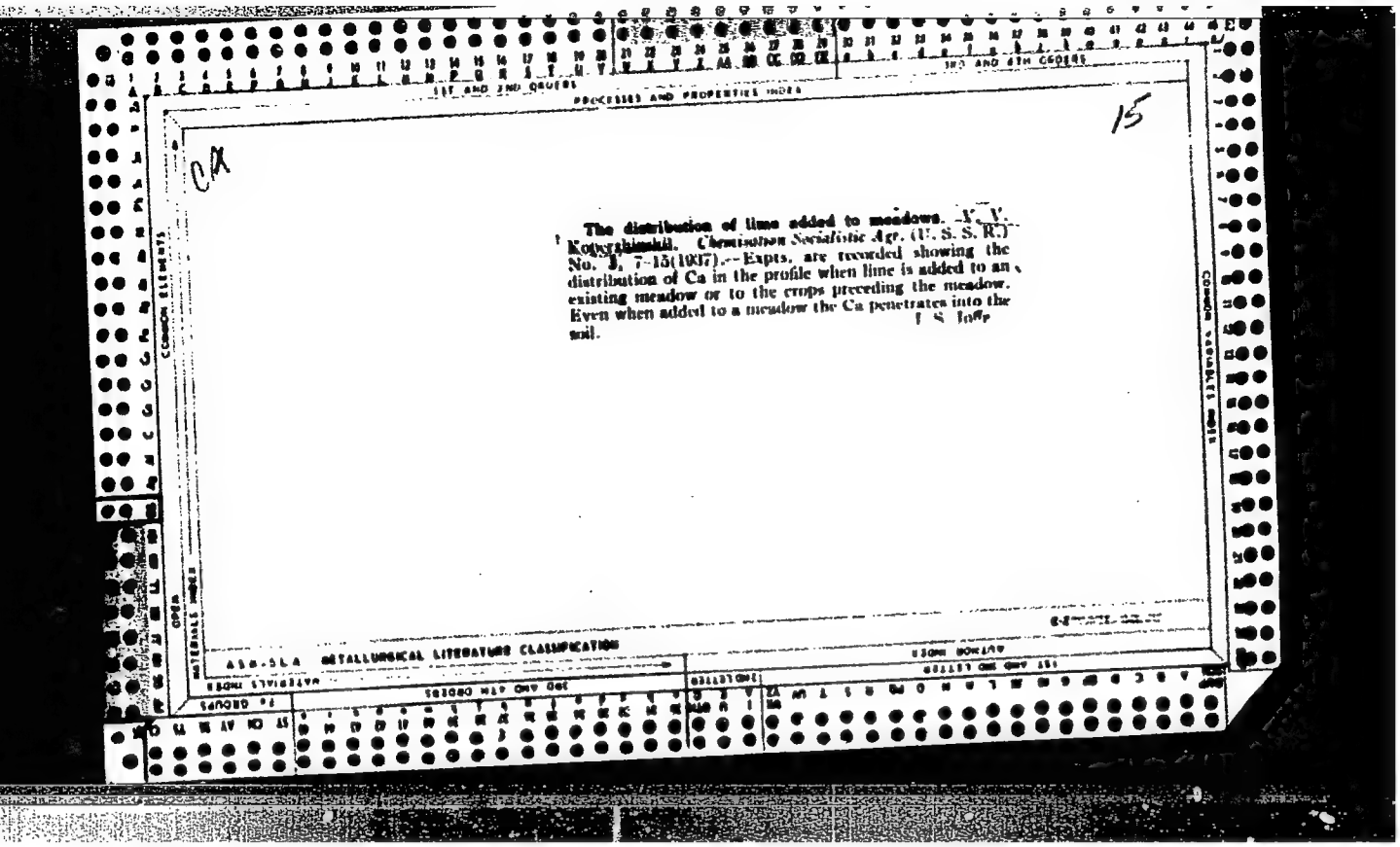

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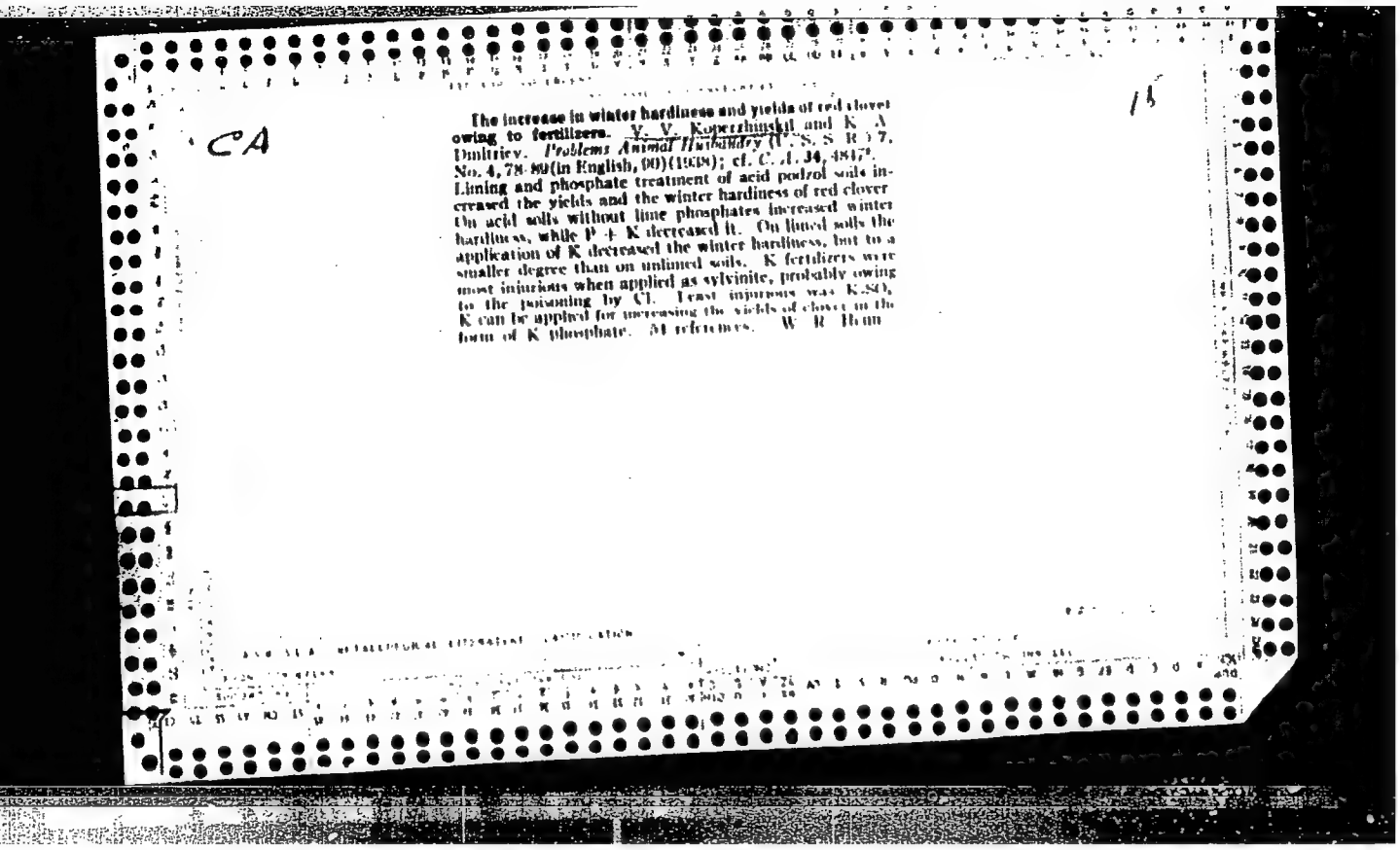

CA

15

The increase in winter hardiness and yields of red clover owing to fertilizers. V. V. Koperzhinskii and K. A. Dmitriev. *Problems Animal Husbandry* (U. S. S. R.) 7, No. 4, 78-89(in English, 90)(1939); cf. C. A. 34, 4847⁸. Liming and phosphate treatment of acid podzol soils increased the yields and the winter hardiness of red clover On acid soils without lime phosphates increased winter hardiness, while P + K decreased it. On limed soils the application of K decreased the winter hardiness, but to a smaller degree than on unlimed soils. K fertilizers were most injurious when applied as sylvinite, probably owing to the poisoning by Cl. Least injurious was K_2SO_4. K can be applied for increasing the yields of clover in the form of K phosphate. 41 references. W. R. Hum

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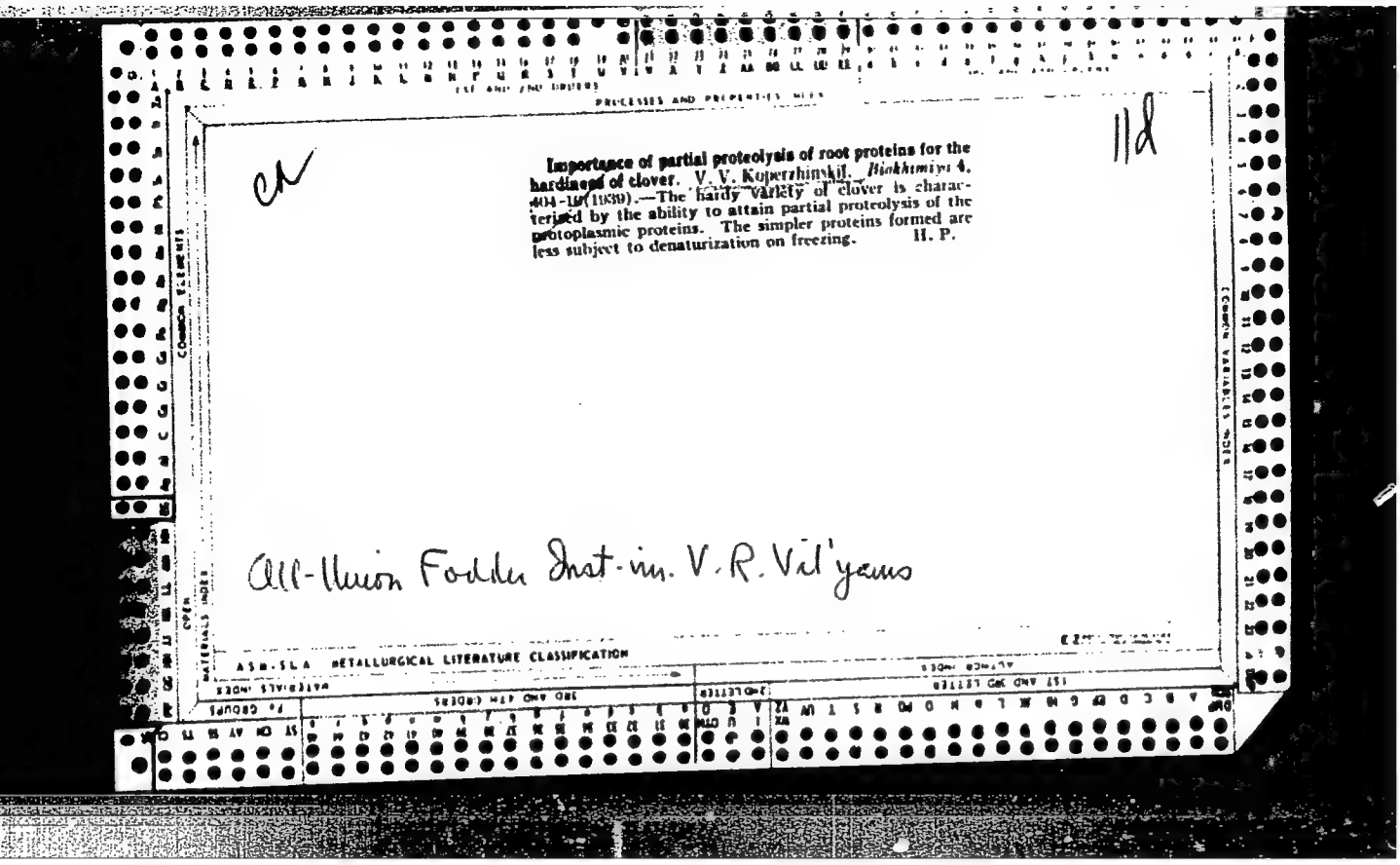

Importance of partial proteolysis of root proteins for the hardiness of clover. V. V. Kuperzhinskiĭ. *Biokhimiya* 4, 404–18(1939).—The hardy variety of clover is characterized by the ability to attain partial proteolysis of the protoplasmic proteins. The simpler proteins formed are less subject to denaturization on freezing. H. P.

All-Union Fodder Inst. im. V. R. Vil'yams

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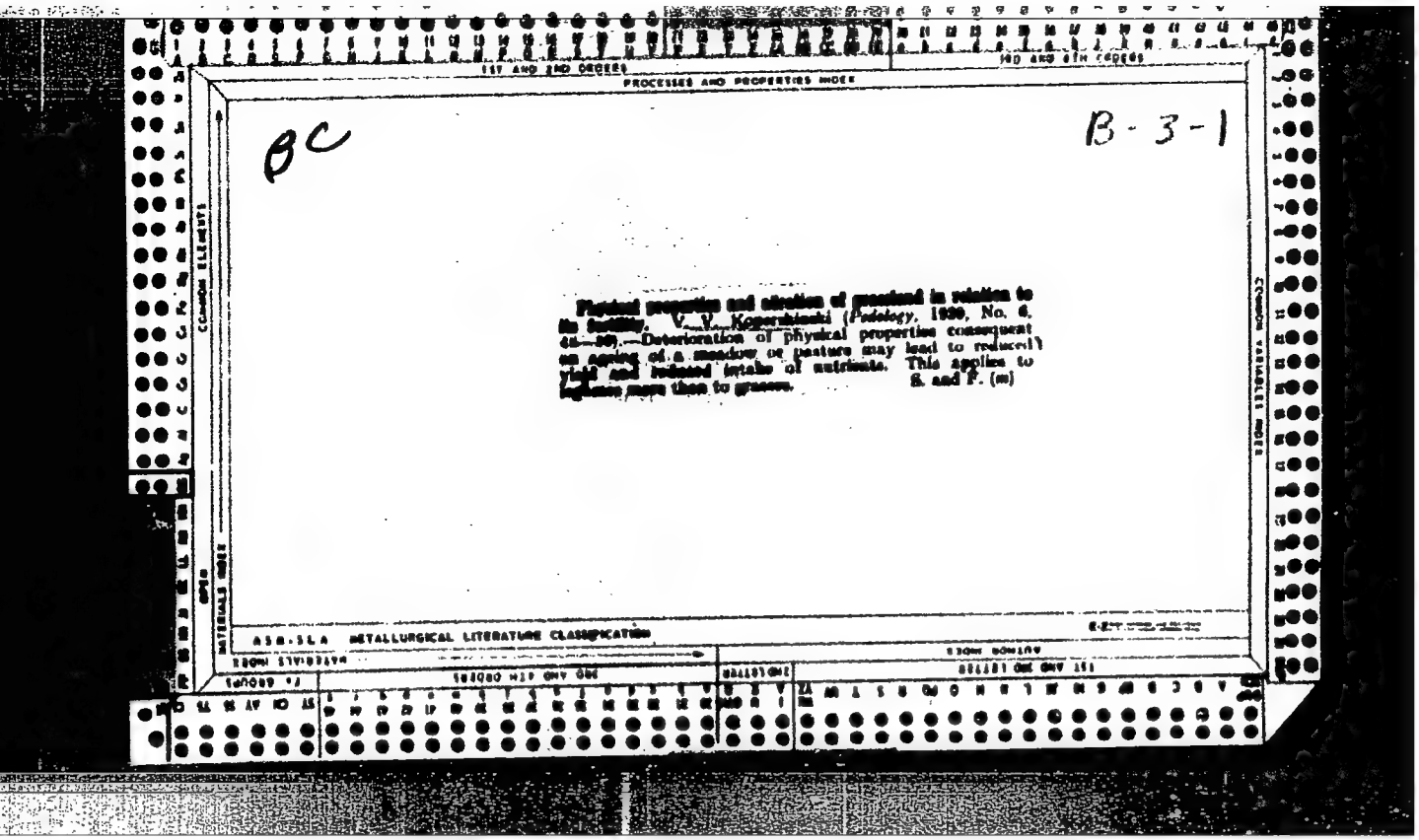

BC

B-3-1

Physical properties and aeration of grassland in relation to its fertility. V. V. Koperzhinski (*Pedology*, 1939, No. 6, 48—59).—Deterioration of physical properties consequent on ageing of a meadow or pasture may lead to reduced yield and reduced intake of nutrients. This applies to tillage more than to grasses. S. and F. (m)

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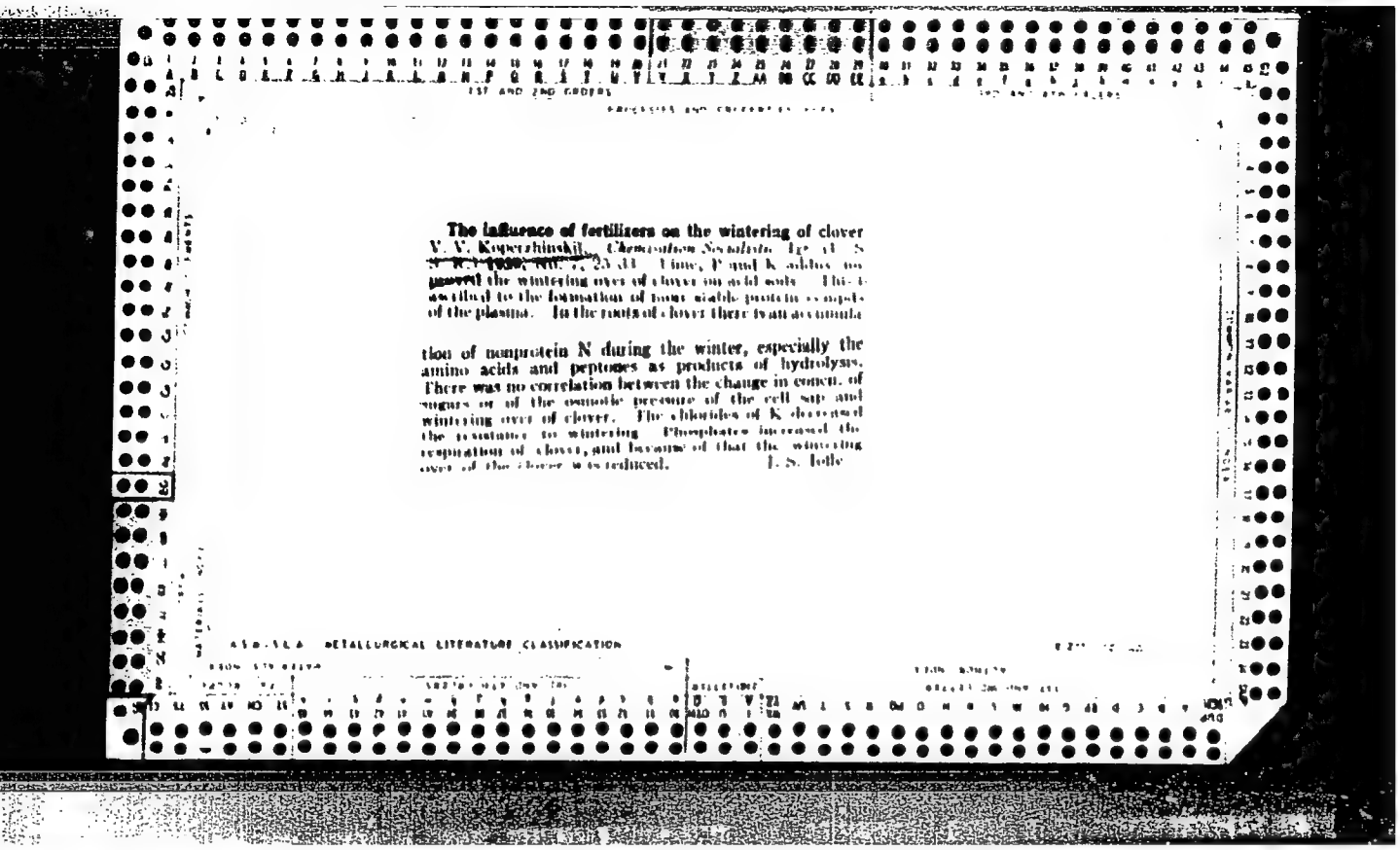
1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX



The influence of fertilizers on the wintering of clover

V. V. Koperzhinskii. *Chemization Socialistic* Ag. [illegible] S. S. R. [illegible], No. 7, 25-33. Lime, P and K additions [illegible] proved the wintering over of clover on acid soils. This is ascribed to the formation of more stable protein compds of the plasma. In the roots of clover there is an accumulation of nonprotein N during the winter, especially the amino acids and peptones as products of hydrolysis. There was no correlation between the change in concn. of sugars or of the osmotic pressure of the cell sap and wintering over of clover. The chlorides of K decreased the resistance to wintering. Phosphates increased the respiration of clover, and because of that the wintering over of the clover was reduced. I. S. Iofle

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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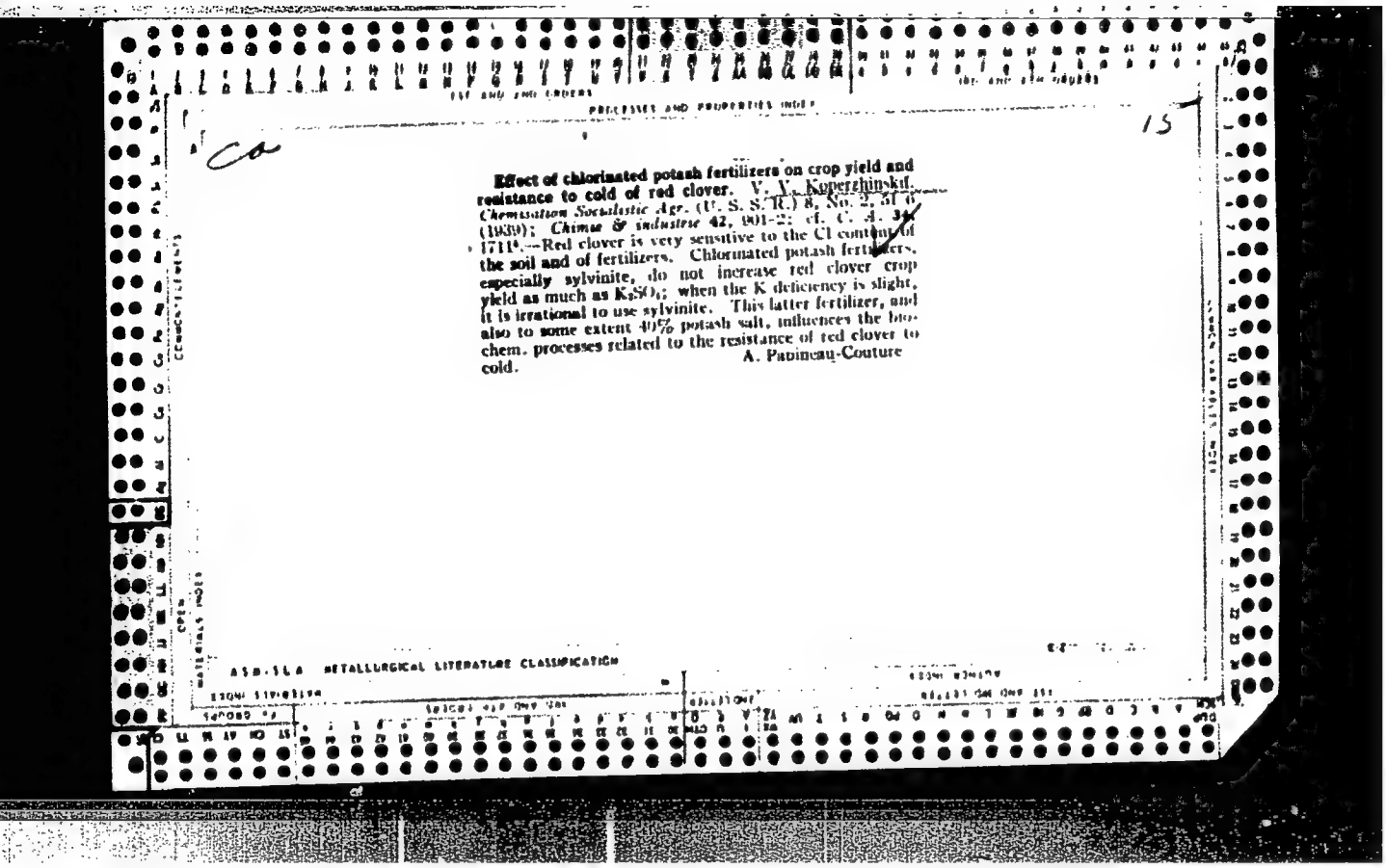

Effect of chlorinated potash fertilizers on crop yield and resistance to cold of red clover. V. V. Koperzhinskiĭ. *Chemisation Socialistic Agr.* (U. S. S. R.) 8, No. 2, 31-6 (1939); *Chimie & industrie* 42, 901-2; cf. C. A. 33, 1711⁹.—Red clover is very sensitive to the Cl content of the soil and of fertilizers. Chlorinated potash fertilizers, especially sylvinite, do not increase red clover crop yield as much as K_2SO_4; when the K deficiency is slight, it is irrational to use sylvinite. This latter fertilizer, and also to some extent 40% potash salt, influences the biochem. processes related to the resistance of red clover to cold.
A. Papineau-Couture

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KOPERZHINSKIY, V.V. I SHCHIBRYA, A.A.

25072 KOPERZHINSKIY, V.V. I SHCHIBRYA, A.A. Voprosy Biologii Tsveteniya I Plodoobrazovaniya U Lyutserny. V. Sb: Voprosy Kormodobyvaniya. Vyp. 2. M., 1949, S. 113-20

SO: Letopis', No.33, 1949

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

1. KOPERZHINSKIY, V. V.

2. USSR (600)

4. Alfalfa

7. Controling the flow of nutritional substances in seed alfalfa. Dokl. AN SSSR 87 No. 5, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953. Unclassified.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, V.V.

The effectiveness of superphosphate in relation to the influence of phosphorus on plant respiration. Doklady Vsesoyuz. Akad. Sel'sko-Khoz. Nauk im. V.I. Lenina 18, No.2, 18-23 '53. (MLRA 6:3)
(CA 47 no.14:7143 '53)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, V.V.

Use of 2,4-D for raising the yield of seeds of alfalfa and esparsette.
Doklady Akad. Nauk S.S.S.R. 88, 353-6 '53. (MLRA 6:1)
(CA 47 no.13:6593 '53)

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, V. V.

KOPERZHINSKIY, V.V.: "The biology of the inflorescence and the formation of seed and the nutrition of the generative organs of lucerne (principles of increasing the seed harvest)." All-Union Sci Res Inst of Fodders imeni V. R. Vil'yams. Moscow, 1956. (Dissertation for the degree of Doctor in Agricultural Science.)

Knizhnaya Letopis'
No 32, 1956. Moscow.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, V.V.

2

Uptake and distribution of labeled phosphorus in extraradicle nutrition of opium poppy. V. V. Koperzhinskii and V. V. Sheberstov. *Doklady Akad. Nauk S.S.S.P.* 106, 1081-4(1936).—Poppy plants were grown in NPK medium with 0.01 g. B added/vessel. In late summer the plants were sprayed with P^{32}-labeled phosphate and the plant parts were subsequently examd. for P^{32} distribution. On the 3rd day the labeled P had moved to the lower leaves, roots, and generative organs; after 22 days the residue in the upper leaves declined as did that in lower leaves, but the content in the generative organs rose by some 30-fold. Thus, extraradicle supply of P is directed principally to these organs. If the spraying is directed at the lower leaves, the content of P^{32} in upper younger leaves shows a gradual increase with time. If P^{32} is introduced through the soil, its utilization is 400–1400 times more intensive than with spraying application. The results indicate that the poor assimilation of P through the leaves is responsible for lack of crop response to spraying methods in nutrition of poppy. G. M. Koselaneff

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, V. V.: Doc Agric Sci (diss) -- "The biology of blossoming and seed formation and the feeding of the generative organs of lucerne. (Principles of increasing the seed harvest)". Balashikha, 1958. 22 pp (Min Agric USSR, All-Union Order of Lenin Acad Agric Sci im V. I. Lenin, All-Union Sci Res Inst of Plant Growing), 200 copies (KL, No 6, 1959, 137)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, Viktor Vasil'yevich; BORZAKOVSKIY, I.V.; KOVUN, P.K., red.; LEONOVA, T.S., red.; LEVINA, L.G., tekhn. red.

[How to establish an efficient fertilizer management system on the farm] Kak sostavit' sistemu udobreniia v khoziaistve. Moskva, Izd-vo M-va sel'.khoz. RSFSR, 1960. 48 p. (MIRA 14:9)
(Fertilizers and manures)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, Ya.A., inzh.

Ships for lumber transportation. Sudostroenie 26 no.6: 8-11 Je '60. (MIRA 13:7)
(Inland water transportation)
(Lumber--Transportation)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPERZHINSKIY, Ya.A., kand.tekhn.nauk

Peculiarities in the design of pontoon dock gates. Sudostroenie 28 no.4:56-57 Ap '62. (MIRA 15:4)
(Sluice gates)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETMAN, L., inzh.

New methods for straightening hulls of river barges and leveling bottom platings. Rech. transp. 20 no. 1:31-32 Ja '61. (MIRA 14:2)

1. Master korpusnogo tsekha Izmail'skogo sudoremontnogo zavoda.
(Barges--Maintenance and repair)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETMAN, L.N., inzh.

Study of temperature fields and selection of the regimes of arc welding with a ribbon electrode. Trudy LIVT no.80:54-60 '65. (MIRA 18:10)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETMAN, L.N., inzh.

Process of heat convection in a finite plane body. Svar.proizv. no.10: 16-19 O '64. (MIRA 18:1)

1. Leningradskiy institut vodnogo transporta.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETMAN, L.N., inzh.

Temperature field in a flat layer from the linear source of finite width during wide-layer surfacing. Svar. proizv. no.1: 2-5 Ja '65. (MIRA 18:3)

1. Leningradskiy institut vodnogo transporta.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETS, F.P.

Courses for the improvement of qualifications of hydraulic engineers at the Groznyy Experimental and Land Improvement Station. Gidr. i mel. 15 no.6:57-58 Je '63.
(MIRA 16:8)

1. Direktor kursov povysheniya kvalifikatsii gidrotekhnikov pri Groznenskoy opytno-meliorativnoy stantsii.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETS, G. F.

4437. Malogabaritnaya perenosnaya ustanovka dlya poverki elekrtoizmeritel'nykh priborov peremennogo i postoyannogo toka. (Il opyta leningr. kontory ((Energo-legprom))). L., 1954. Obl., 4S.S Ill. 2P SM. (Vsesoyuz. O-Vo po rasprostraneniyu polit. i nauch. znaniy. Leningr. Dom nauch-tekhn. propagandy. Inform-tekhn. Listok. No. 111 (684). 3.800 Ekz 10K. - Avt. Ukazan v kontse Teksta. -
(54-14786Zh)

621.317.7

SO: Knizhnaya Letopsis', Vol. 1, 1955

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETS, G.F., inzhener.

Small portable outfit for testing electric measureing instruments. Energetik 2 no.6:20-22 Je '54. (MLRA 7:7)
(Electric meters)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

~~KOPETS, Z~~ KOPEC, Z.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1837
AUTHOR KOPEC, Z.
TITLE On the Problem of the Effective Mass of Electrons and Holes in Germanium.
PERIODICAL Žurn.techn.fis, 26, fasc.11, 2451-2458 (1956)
Issued: 12 / 1956

It is of interest to compare the data on the structure of its zone at its edge, obtained by the investigation of cyclotron resonance, with those obtained by the analysis of considerably more complicated effects (if the method of cyclotron resonance is not applicable). A possibility of solving this problem is offered by the analysis of the temperature course of the thermoelectromotoric force and the concentration of current carriers within the domain of admixture conductivity. At first the thermoelectromotoric force α for a type of carriers is given; the formula derived for this purpose holds good on the following conditions:
1.) The expression for scattering is isotropic and permits the employment of a LORENTZ solution.
2.) Applicability of the usual method of effective masses.
3.) Phonons to be taken into account in connection with the temperature gradient according to DEBYE without correction for the lack of thermodynamic equilibrium.

For the analysis of the effective mass by means of the aforementioned formula for α it is necessary to measure the three experimental quantities α, R and σ for a set of samples with different concentration of current carriers within a temperature range in which this formula describes the behavior of the thermoelectro-

Žurn.techn.fis, 26, fasc.11, 2451-2458 (1956) CARD 2 / 2 PA - 1837

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-

motoric force sufficiently well. This analysis is above all suited for substances with predominantly atomic binding, e.g. germanium. The mechanism of scattering can be taken into account in the case of germanium-monocrystals and -polycrystals.
As a criterion for the applicability of the above formula for α for the analysis of the thermoelectromotoric force the temperature course of α may be taken: the effective masses determined by the analysis of germanium samples (8) are shown in a table. According to these data the effective mass computed for electrons is larger than the effective mass computed for the holes (within the concentration- and temperature-range under investigation). However, analysis of the data on current carriers in Ge is known to produce a contradictory result. This contradiction may be explained by considering the complicated structure of the zones in Ge. One of the conditions for the correctness of the aforementioned equation for α looses its validity, and the formulae must be changed accordingly. Nevertheless, the numerical results obtained here probably retain a certain importance. According to a newly carried out computation of the effective mass included within the concentration formula, the results obtained by the author are in quite good agreement with the data corresponding to cyclotron resonance.

INSTITUTION:

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

TRUKHTENKOVA, N.Ye.; KOPETSKAYA, D.L.; FIRSANOVA, N.Ye.

Bleached aspen sulfite woodpulp in papermaking. Bum.prom. 37 no.12:11-16 D '62. (MIRA 16:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tsellyulozno-bumazhnoy promyshlennosti.
(Woodpulp industry—Research)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETSKAYA, T. A., Cand Chem Sci --(diss) "Electron-microscopic studies of the microstructure of polymers." Mos, 1957. 12 pp (Min of Chem Industry USSR, Order of Labor Red Banner Sci Res Phys-Chem Inst im L. Ya. Karpov), 110 copies (KL, 52-57, 103)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPETSKIY, A. P.

"The Problem of the Effect of the Second Signal System on the Process of Forming Conditioned Motor Reflexes in Novice Athletes." Cand Med Sci, Odessa State Medical Inst, Odessa, 1954. (RZh Biol, No 8, Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556 24 Jun 55

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

5(2,4)

AUTHORS: Kopetskiy, Ch. V., Shekhtman, V. Sh., SOV/20-125-1-22/67
Ageyev, N. V., Corresponding Member, AS USSR, Savitskiy, Ye. M.

TITLE: Formation of the σ Phases in the Rhenium-manganese and Rhenium-iron Systems (Obrazovaniye σ -faz v sistemakh reniy-marganets i reniy-zhelezo)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 1, pp 87-88 (USSR)

ABSTRACT: Among the numerous known binary and ternary systems of transition metals σ phases are observed, i.e. compounds with an isomorphous structure of the β-U type. According to modern opinions the condition for the formation of the σ phase is as follows: if one of the components belongs to group VII or VIII of the periodic system the second component must be of group V A or VI A. However, the ε phase of the iron-rhenium system has also a crystal lattice of the σ phase (Refs 1, 2). Since the latter system does not correspond to the above-mentioned condition the σ phase cannot be explained within the framework of the existing theories (Refs 3, 4). The alloy produced by the authors showed a diffraction pattern confirming the data from reference 1 (Table 1). Lattice temperatures were:

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18.8200
8.9200

80009
S/020/60/131/05/043/069
B011/B117

AUTHORS: Savitskiy, Ye. M., Kopetskiy, Ch. V.

TITLE: On the Question Regarding the Plasticity of High-temperature Modifications of Polymorphous Metals

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 131, Nr 5, pp 1137-1139 (USSR)

TEXT: It is stated by the authors that the rule established by Ye. M. Savitskiy with respect to the plasticity of high-temperature modifications of polymorphous metals is of great importance for physics. It obviously points to the close relationship between polymorphism and electron-structural change in the atoms of polymorphic metals with temperature. According to the mentioned rule, the highest-temperature modification of a polymorphous metal must show the highest plasticity. It must have a crystalline structure of the cubic type promoting plastic deformation, i. e. predominantly a face-centered one. From the mentioned rule, some theoretically and practically important conclusions were drawn. It has been also repeatedly confirmed (Refs 2,3). In table 1, polymorphous metals together with their crystalline structures and the temperatures of transition from one modification to another are shown. Table 1 illustrates the Savitskiy rule (tin being an exception). The rule can be obviously explained by the fact that the simpler symmetrical crystalline structures are more stable in all high-

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On the Question Regarding the Plasticity of High-temperature Modifications of Polymorphous Metals

S/020/60/131/05/043/069
B011/B117

temperature phase transitions. That is because they have a lower free energy and a higher entropy. It can be presumed that the polymorphous modifications of the matter are formed as the result of electron-structural changes in the bound atoms and in consequence of the corresponding qualitative changes in the interatomic bonds with temperature (Ref 4). The portion of metallic bonds is apparently increased by higher temperatures. There is evidently a relationship between the electron state of the bound metal atoms, the number of electrons per atom, or the electron concentration and temperature changes. The individual polymorphous modifications correspond to different electron states and to a different electron concentration. The authors make reference to the zone theory of metals involving packing of zones, by Brillouin, and to the theories by H. Jones (Ref 5) and Yum-Rozeri (Refs 6 - 9). From table 1, it is evident that with polymorphous metals except calcium, strontium, and tin polymorphous transitions at temperature decreases take place in a way to maintain a certain sequence of crystal-structural changes: K12(K8)→G12 (the more complicated one). At a temperature decrease, a closely packed hexagonal structure instead of a face-centered or a body-centered cubic structure forms (with several exceptions). From this, the authors conclude that in the crystalline structure of the polymorphous modifications (except calcium and strontium) a successive increase in the limit

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

On the Question Regarding the Plasticity of High-temperature Modifications of Polymorphous Metals

electron concentration takes place. Crystalline structures with higher limit electron concentrations are more stable at lower temperatures, while the high-temperature modifications have a lower limit electron concentration. The authors assume that a polymorphous substance passes a successive series of states when temperature is decreased each of which is characterized by a defined electron concentration. This concentration steadily increases with the temperature decrease; it also produces a successive change in crystal structures. The authors also come to the conclusion that the number of free electrons in an atom of polymorphous metals increases with decreasing temperature. With iron, manganese, plutonium, and thorium, the mentioned sequence is not observed. There are 1 table and 9 references, 7 of which are Soviet.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Institute of Metallurgy imeni A. A. Baykov of the Academy of Sciences, USSR)

PRESENTED: December 10, 1959, by I. P. Bardin, Academician

SUBMITTED: December 1, 1959

Card 3/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

33177

S/180/61/000/006/007/020
E193/E383

18.9500 1521 1530 1418 1454

AUTHORS: Savitskiy, Ye.M., Kopetskiy, Ch.V., Pekarev, A.I. and Novosadov, M.I. (Moscow)

TITLE: Properties of single crystals prepared by electron-beam zone melting

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no. 6, 1961, 74 - 78

TEXT: The properties of high-purity W, Re, Ta, Mo, Nb and V were studied on single-crystal specimens prepared by electron-beam zone melting (5 - 8 passes at 8 - 10 cm/h) from sintered-powder compacts (2 - 5 mm in diameter) preliminarily degassed by vacuum treatment at 1 800 - 2 500 °C. It was confirmed by X-ray diffraction study that single crystals were, in fact, obtained by this method. No preferred crystal-growth orientation was observed and, in some cases, there was evidence of a slight ($< 0.5^{\circ}$) block misalignment. The existence of sub-boundaries was revealed by metallographic examination. The results of hardness measurements are reproduced in Table 1, where columns

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33177

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E193/E383

Properties of single crystals ....

I and II relate, respectively, to single crystals prepared by electron-beam zone melting and vacuum arc-melted buttons. UTS of Ta single crystals was 20.8 kg/mm^2, the corresponding figures for Mo and Nb being 41.7 and 17.2 kg/mm^2. In every case, the reduction in area amounted to ~100%. High plasticity of the zone-melted specimens was indicated also by the fact that single Mo crystals could be bent over a radius of 4-5 mm and could be reduced by cold-working to foil 0.2 - 0.3 mm thick or to wire 1 - 1.5 mm in diameter; Single V crystals could also be reduced to foil 0.15 mm thick. The purity of the single crystals of the metals studied was determined by determining the $\rho_{300°K}/\rho_{4.2°K}$ ratio, where ρ denotes the electrical resistivity at the respective temperatures. This ratio was 1 400 and 900, respectively, for single W and Mo crystals, the corresponding figure for these metals melted in a conventional manner being 10 - 20. The results of the present investigation indicated that high-purity single crystals could be prepared by electron-beam zone melting.

Card 2/

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

33177

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E193/E383

Properties of single crystals ....

There are 2 tables, 5 figures and 6 references: 2 Soviet-bloc and 4 non-Soviet-bloc. The four English-language references mentioned are: Ref. 3: A. Calverley, M. Davis, R.F. Lever - J. Scient. Instrum., 1957, v.34, no. 4; Ref. 4: H.R. Smith - J. Metals, 1959, v. 2, no. 2; Ref. 5: H.W. Schadler - Trans. Metallurg. Soc. AIME, 1960, 218, 4, 649.

SUBMITTED: April 1, 1961

Table 1:

Металл Metal	H_V, кг/мм² kg/mm² I	II	Металл Metal	H_V, кг/мм² kg/mm² I	II
W	345	345—355	Mo	177	175—185
Re	112	220—250	Nb	79	130—140
Ta	76	150—170	V	91	170—190

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

23085

S/078/61/006/006/011/013
B110/B206

18.9200 1454, 1555, 1418

AUTHORS: Savitskiy, Ye. M., Tylkina, M. A., Kirilenko, P. V., Kopetskiy, Ch. V.

TITLE: The phase diagram of the manganese - rhenium system

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 6, 1961, 1474-1476

TEXT: Since only provisional data are available on the manganese - rhenium system, the latter was checked by micro- and X-ray structural analysis, thermal analysis and investigation of the microhardness of the phases. Part of the results is given in the phase diagram (Fig. 1). Since the fusing point of rhenium at 3160°C lies much higher than the boiling point of manganese at 2090°C, Mn-Re alloys could only be melted up to 30 atom % Re in the vacuum induction furnace in Ar atmosphere. Electrolytic manganese (99.83%) and pressed rhenium powder (99.8%) sintered at 1500°C served as initial substances. Alloys with 0.2; 0.3; 0.5; 1.87; 2.64; 3.1; 5.56; 9.65; 10.72; 17.05; 20.42; 22.9 and 32.1 atom % rhenium content were investigated. Hardening was done at 950°C for 100 hr. It was established by microstructural analyses that α-Mn dissolves up to

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The phase diagram of the ...

5.5 atom % Re. From this content on, the structure of the alloy is a diphase one. The σ-phase (52.24 atom % Re) forming during the peritectic reaction is separated dendritically and increases with increasing rhenium content. The radiographs, the results of which coincide with those of the microstructural analysis, were taken in the РКУ (RKU) and РКД (RKD chambers with CrK_α- and $V K_\alpha$ emissions. The structure of the solid solution is that of α-manganese. The parameter of its crystal lattice changed from 8.894 kX (pure Mn) to 8.924 kX at a 5.56 atom % Re content and then remains constant. From about 9.5 atom % Re, interferences of the σ-phase which increase with increasing Re concentration can be observed. The parameters of the crystal lattice of the α-phase with 22.9 atom % Re are: a = 9.11 kX; c = 4.92 kX; c/a = 0.54. No β-Mn interferences were established. The thermal analysis was made with the W-Re thermocouple ВР 5/20 (VR 5/20) according to the method described by the first author: Dokl. AN SSSR, 129, 559 (1959). It was established that rhenium admixtures > 5.54 atom % lead to the increase of all temperatures of the polymorphous transitions and the fusing temperature of Mn-Re. The temperature of formation of the σ-phase (presumably < 1700°C) could not be determined. The analogous metals of the VIIth

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

The phase diagram of the ...

group of the periodic system rhenium and manganese form, against the rule, no continuous series of solid solutions. The σ-phase forms at 52.24 atom % Re content, the range of solid solutions only goes up to 5.5 atom % Re content. This probably produces the relationship of the α- and β-modifications of Mn forming at low temperatures, with the intermetallic compounds (χ- and ζ phases) on the basis of its interatomic bond type, the crystalline and physical properties. In contrast to Ti, Zr, Nb and Ta, rhenium is soluble in α-Mn up to 5.5 atom %, and the structure of the β-modification is not undercooled. This confirms the favorable value of the size factor of Re as a cause for its solubility. There are 2 figures and 4 Soviet-bloc references.

ASSOCIATION: Institut metallurgii im. A. A. Baykova Akademii nauk SSSR (Metallurgical Institute imeni A. A. Baykov, AS USSR)

SUBMITTED: November 9, 1960.

Card 3/4

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

SAVITSKIY, Ye.M.; KOPETSKIY, Ch.V.; PEKAREV, A.I.; NOVOSADOV, M.I.

Apparatus for zonal smelting of low-melting metals and alloys by means of electron bombardment. Zav.lab. 27 no.8:1041-1042 '61. (MIRA 14:7)

1. Institut metallurgii AN SSSR imeni A.A.Baykova.
(Electrometallurgy)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

SAVITSKIY, Ye. M.; KOPETSKIY, Ch. V.

Physicochemical interaction between manganese and niobium.
Zhur. neorg. khim. 5 no.3:755-757 Mr '60. (MIRA 14:6)

1. Institut metallurgii im. A. A. Baykova AN SSSR.
(Manganese-niobium alloys)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

S/180/62/000/004/008/009
E111/E183

AUTHORS: Savitskiy, Ye.M., and Kopetskiy, Ch.V. (Moscow)

TITLE: Solubility of chemical elements in manganese

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.4, 1962, 157-161

TEXT: An attempt was made to use the established general principles of the formation of metallic substitutional solid solutions to estimate the solubility of various elements in allotropic modifications of manganese. It was shown that solid solubility is satisfactorily defined by three factors: size (atomic radii), chemical and crystallographic. Of 21 elements for which the dimensional factor is favourable and which are electronegative with respect to gamma-manganese, 17 form regions of limited solid solutions with over 5 atomic %, and only 4 have a low solubility (under 1-2 atomic %). The chemical factor is most conveniently expressed through the difference in electronegativity. For gamma manganese a continuous range of

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Solubility of chemical elements ...

substitutional solid solutions is formed if the size factor

$$P = \frac{R_A - R_B}{R_B} \cdot 100\%$$

is between 0 and -5% (where R_A and R_B are the atomic radii of the solute and manganese, respectively), if the difference between the electronegativity of manganese and the solute is between 0.1 and 0, and if the crystal lattices correspond. Rather similar relationships hold for beta-manganese, but not for the alpha modification, probably because of its complicated structure. It is concluded that the method studied is suitable for estimating the solubility of various elements in metals.
There are 2 figures.

SUBMITTED: January 19, 1962

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APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

SAVITSKIY, Ye.M.; KOPETSKIY, Ch.V.; PEKAREV, A.I.; NOVOSADOV, M.I.

Obtaining, and the properties of, single crystals of high-melting tungsten, rhenium, tantalum, molybdenum, and niobium metals. Issl. po zharopr. splav. 9:192-194 '62. (MIRA 16:6)
(Metal crystals) (Zone melting)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

SAVITSKIY, Ye.M., doktor khim. nauk; KOPETSKIY, Ch.V.; BURKHANOV, G.S.

Refractory metals and their role in modern technology. Vest. AN SSSR 33 no.10:29-36 O '63. (MIRA 16:11)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

EWT(m)/EWP(w)/EWA(d)/EWP(t)/EWP(b) ... MLK

ACCESSION NR: AT4047630 S/0000/64/000/000/0395/0407

AUTHOR: Savitskiy, Ye. M.; Ty*lkina, M. A.; Polyakova, V. P.; Tsy*ganova, I. A.; Kopetskiy, Ch. V.

TITLE: Alloys of palladium with tungsten, rhenium, osmium, and iridium

SOURCE: Vsesoyuznoye soveshchaniye po elektricheskim kontaktam ... materialam, 3d, Moscow, 1962. Elektricheskiye kontakty* (Electric ... soveshchaniya, Moscow ...

TOPIC TAGS: palladium alloy, Pd-W, Pd-Re, Pd-Os, Pd-Ir

ABSTRACT: The results of an investigation of the physico-chemical interaction ... W, Re, Os, and Ir are reported; four double constitution diagrams ... also, a triple diagram Pd-W-Re ... been constructed ... with the above ... simple diagram ...

Card 1/2

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ACCESSION NR: AT4047630

4

chemical compound was detected. All these metals increase the Pd melting point; W is particularly effective in this respect: with 20% W, the alloy melting point is 2,000C and the peritectic-reaction point is 2,175C. The micro- [illegible] hardness, and effect of thermal treatment of the above alloys were investigated. Resistivity was measured at 25 and 100C; all additions increase the resistivity of Pd; a Pd+20% W alloy has 107—110 microhms-cm and a temperature coefficient of $(4.5—7) \times 10^{-5}$; coupled with Cu, this corrosion- [illegible] alloy develops 3.9 microvolt/degree; its ultimate strength, 65 kr/mm^2, with elongation up to 30%. Orig. art. has: 10 figures and 1 table

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

SUBMITTED: 13Jul64 ENCL: 00

SUB CODE: MM, EE NO REF SOV: 000 OTHER: 000

Card 2/2

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EWP(e)/EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/EPR/T/EWP(t)/EWP(b) Ps-4/
[illegible]/ASD(m)-3/ASD(f)-3/AS(mp)-2/RAEM(e) AT/WH/WW/JD/HW/JG
S/0279/64/000/006/0129/0136

ACCESSION NR: AP5001615

[illegible]avitskiy, Ye. M. (Moscow); Kopetskiy, Ch. V. (Moscow); [illegible]aya, Ye. F. (Moscow) B

TITLE: Characteristics of the plastic deformation and mechanical properties of some intermetallic compounds 27

SOURCE: AN SSSR. Izvestiya. Metallurgiya i gornoye delo, no. 6, 1964, 129-136

TOPIC TAGS: intermetallic compound, plastic deformation, mechanical [illegible], temperature effect, Fe_2Ta compound, Fe_2Zr compound, NiAl compound, Ni_3Ti compound, Ni_3Ta compound, Ni_3Nb compound, Ni_3Al compound 27 27 27

ABSTRACT: The effect of crystal structure on the deformation behavior of NiMe-type intermetallic compounds has been studied. Deformation was carried out by compression at temperatures ranging from -196C [illegible]-melting temperature. In Ni_3Nb single crystals at room temperature, slip occurred along the (010) plane. This is probably true of Ni_3Ta compound which is isomorphic with Ni_3Nb. (The Ni_3Nb compound has a CuTi-type c.p.h. lattice with the constants 5.10 and 4.52 kX)

Card 1/3

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ACCESSION NR: AP5001615

Additional slip planes were observed in polycrystalline Ni_3Nb. Great differences in the temperature-induced softening of ductile Ni_3Al, ductile Ni_3Nb, Ni_3Ta, Ni_3Ti, and brittle Fe_2Ti and Fe_2Ta compounds were observed (see Fig. 1 of the Enclosure). The NiAl compound, which at room temperature has a compressive strength of about 62 kg/mm^2 and is brittle, softened at 800C to such an extent that it sustained 7% compression without failure. It is concluded that crystal structure is the main factor determining the compression strength and behavior of metallic compounds at high temperatures. Orig. art. has: 5 figures and 1 table. [MS]

ASSOCIATION: none

SUBMITTED: 25Mar64 ENCL: 01 SUB CODE: IC, SS

NO REF SOV: 011 OTHER: 010 ATD PRESS: 3169

Card 2/3

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

L 22209-65

ACCESSION NR: AP5001615

ENCLOSURE: 01

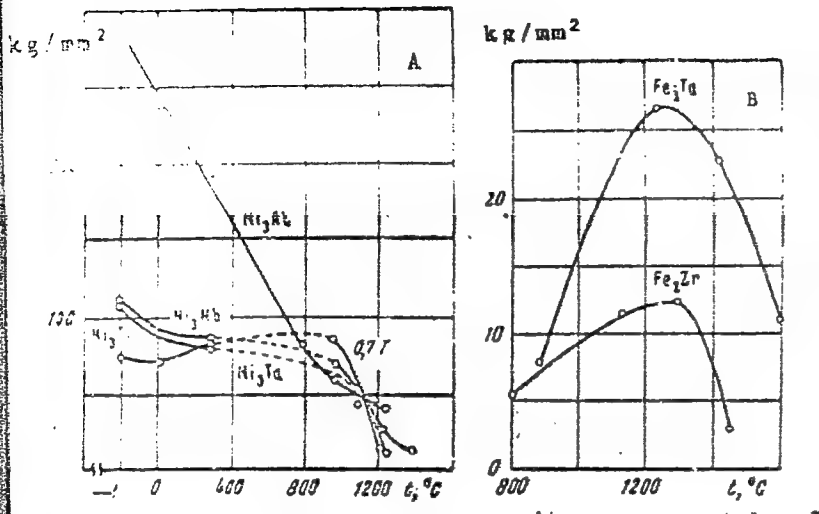

Fig. 1. Temperature dependence of the compression strength of intermetallic compounds

A - Ni_3Me-type compounds; B - Laves phases.

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L 11825-66 EWT(m)/EWP(w)/EPF(n)-2/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG

ACC NR: AT6002266 SOURCE CODE: UR/2564/65/006/000/0308/0318

AUTHOR: Savitskiy, Ye. M.; Burkhanov, G. S.; Kopetskiy, Ch. V.; Chuprikov, G. Ye.

ORG: none

TITLE: Growing and plastic deformation of the single crystals of refractory metals and alloys

SOURCE: AN SSSR. Institut kristallografii. Rost kristallov, v. 6, 1965, 308-318

TOPIC TAGS: refractory metal, refractory alloy, metal refining, alloy refining, tungsten, molybdenum, rhenium, tantalum, niobium, vanadium, zone refining, refractory metal single crystal, refractory alloy single crystal, single crystal growing, single crystal property

ABSTRACT: The physical and mechanical properties of single crystals of tungsten, molybdenum, rhenium, tantalum, niobium, vanadium, and their alloys grown from melts of vacuum-arc melted or sintered metals have been investigated. Crystals up to 12—14 mm in diameter and 150—250 mm long were grown in an electron-beam furnace developed at the Refractory and Rare Metals Laboratory of the Institute of Metallurgy im. A. A. Baykov in 1960-1961 for vacuum zone melting of refractory metals. The crystal purity was found to be two orders higher than that of the initial metals and alloys. For instance, the oxygen content dropped from 0.05 and 0.012% in the sintered and in vacuum-arc melted rhenium, respectively, to 0.001% in single crystals. The removal of interstitial impurities decreased the

Card 1/2

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 002/ ATD PRESS: 4178

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HW

Card 2/2

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

ACC NR: AT6034432 (A) SOURCE CODE: UR/0000/66/000/000/0015/0024

AUTHOR: Savitskiy, Ye. M.; Burkhanov, G. S.; Kopetskiy, Ch. V.; Bokareva, N. N.; Kardashevskaya, V. G.

ORG: none

TITLE: Production and properties of single crystals of refractory metals and alloys

SOURCE: AN SSSR. Institut metallurgii. Svoystva i primeneniye zharoprochnykh splavov (Properties and application of heat resistant alloys). Moscow, Izd-vo Nauka, 1966, 15-24

TOPIC TAGS: refractory metal, refractory alloy, single crystal, molybdenum, niobium, tungsten

ABSTRACT: The two main methods for production of metallic single crystals are extraction from a melt by the recrystallization method, and zone refining. The method of extraction from a melt by seeding is widely employed industrially for growing large single crystals of germanium, silicon (up to 80 mm in diameter), and semiconductor compounds of varying composition for diodes, transitors, and condensers. Application of this method to refractory metals has not been widely developed. The article describes in detail the techniques of zone refining. In vertical zone melting without a crucible, the ratio of the surface tension to the density of the melt should be

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ACC NR: AT6034432

100:1 or greater. The maximum size of single crystal rods produced by this method is, for example, 14-16 mm for molybdenum and 6-8 mm for tungsten, with a length of the order of 200-250 up to 500 mm. A table shows the purity and mechanical properties of rhenium of different degrees of purity, including the mechanical properties under elongation stress, the hardness, and the temperature of the start of recrystallization. A further table lists the mechanical properties of single crystals of various alloys of the refractory metals. It is found that an increase in the purity of zone refined molybdenum considerably lowers its resistance to deformation. Based on experimental results, a series of figures illustrate the substructure of single crystalline alloys, the mechanical properties of single crystal alloys of the molybdenum-niobium system, and the microhardness of alloys of the molybdenum-niobium system. P. M. Nosov, N. P. Khazov, A. Ye. Tsutskov, and T. S. Stronina took part in the work. Orig. art. has: 6 figures and 3 tables.

SUB CODE: 11/ SUBM DATE: 10Jun66/ ORIG REF: 012/ OTH REF: 005

Card 2/2

ACC NR: AT6034432 SOURCE CODE: UR/0026/66/000/009/0080/0083

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

ACC NR: AP7013703 SOURCE CODE: UR/0026/66/000/009/0080/0083

AUTHOR: Kopetskiy, M. (Candidate of Physico-Mathematical Sciences)

ORG: Astronomical Institute, Czechoslovakian Academy of Sciences, Ondrejov (Astronomicheskiy institut Chekhoslovatskoy akademii nauk)

TITLE: Nature of the secular cycle

SOURCE: Priroda, no. 9, 1966, 80-83

TOPIC TAGS: solar activity, sunspot, solar cycle, solar phenomenon, solar radiation intensity

SUB CODE: 03

ABSTRACT:

The article cited below gives a concise insight into some aspects of the clearly expressed 11-year period in the number of observed sunspot groups and the secular variation of the height of the maxima on individual 11-year periods. The author notes that for study of the patterns of periodicity of sunspots the number of observed groups is not primary and therefore is not the best index. The number N of sunspot groups which exists on the sun at a particular time is dependent on how many groups (f_o) appear on the sun in a unit time and their mean

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ACC NR: AP7013703

lifetime ($\bar{T}_o$). The parameters f_o and T_o can change with time independently of one another. If it is desired to determine the periodicity of the spots it is necessary to study directly the temporal changes of these two indices and not the number N of existing spot groups. Study of the primary indices f_o and $\bar{T}_o$ makes it possible to investigate the periodicity of sunspots from two physically different points of view simultaneously; f_o — the index of frequency of the phenomenon, reflects the quantitative aspect of the spot-forming process, whereas the mean lifetime $\bar{T}_o$ of spot groups is an index of the intensity of the phenomenon and reflects the qualitative aspect of the process. The 11-year period is manifested only for the number f_o of forming spots, whereas it is virtually not traced for the mean duration $\bar{T}_o$ of spot groups. The secular cycle is characteristic only of the mean lifetime of spot groups and is virtually not manifested in the number of forming spot groups. The 11-year and secular cycles of solar spot-forming activity therefore have a different physical nature: the 11-year cycle is associated with the number of forming spot groups and the secular cycle is associated with their mean intensity. The secular cycle is manifested not only in the mean lifetime of the spot groups, but also their mean intensity. At the time of the maximum of the secular cycle there is an increase of the number of groups with a large lifetime, but groups with the same lifetime attain a still greater area than at the time of the minimum of the secular period. Orig. art. has: 5 figures and 1 formula. [JPRS: 40,106]

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPECKI, Otokar, inzh. [Kopecki, Otokar]

Report on scientific works on controlled meat productivity of swine in the Czechoslovak Socialist Republic in 1961. Zesz probl post nauk roln no.43:215-221 '63.

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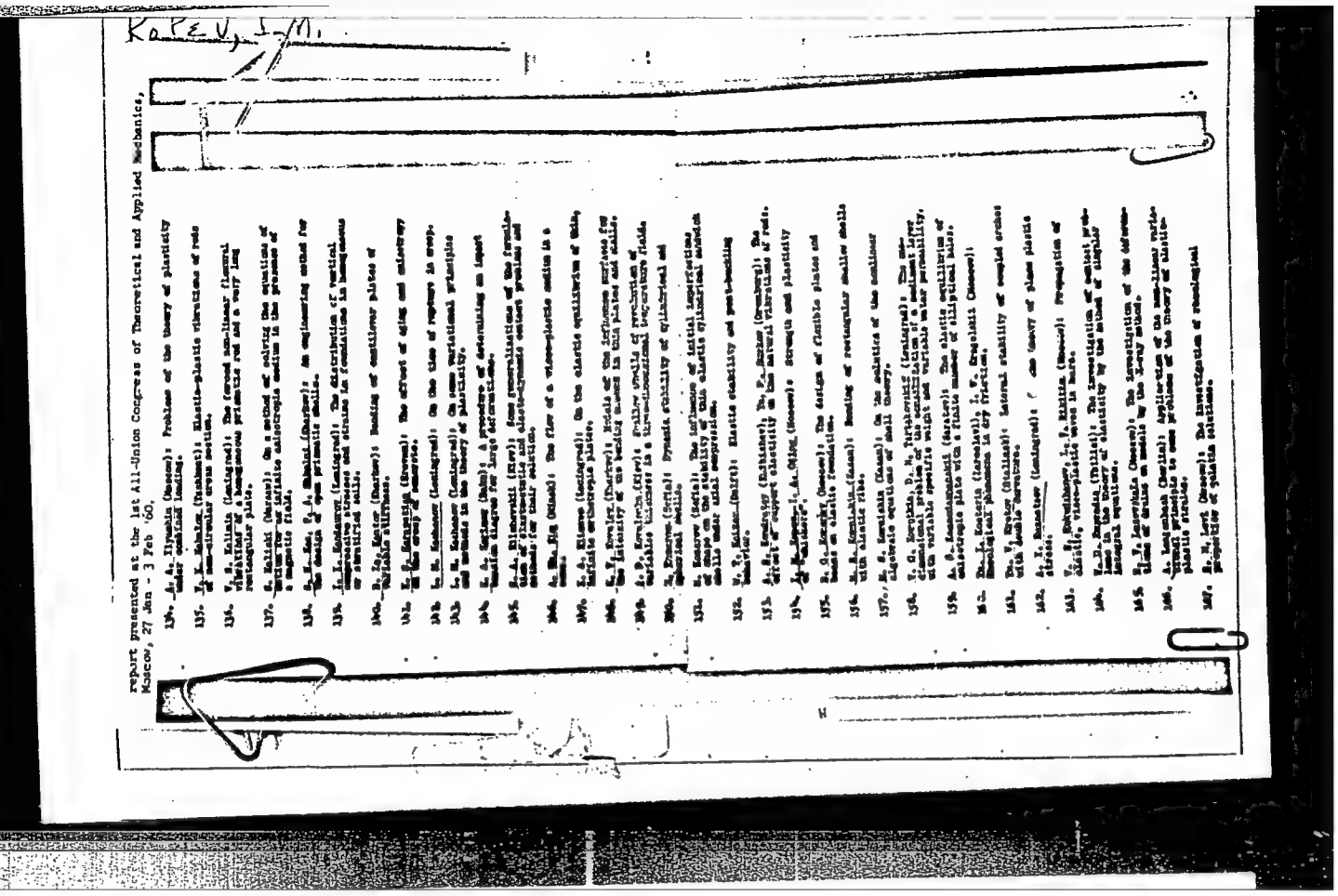

Report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb '60.

134. A. A. Ilyushin (Moscow): Problems of the theory of plasticity under combined loading.

135. Yu. N. Rabotnov (Moscow): Elastic-plastic vibrations of rods of non-circular cross section.

136. V. D. Kilimik (Leningrad): The forced non-linear flexural vibrations of a homogeneous prismatic rod of very long rectangular plate.

137. S. Nikitin (Moscow): On a method of solving the elastic-plastic problem for an infinite anisotropic medium in the presence of a magnetic field.

138. Ya. F. Ren, Ts. A. Shmidt (Leningrad): An engineering method for the design of open prismatic shells.

139. I. I. Kostarov (Leningrad): The distribution of vertical compressive stresses and strains in foundations in homogeneous or stratified soils.

140. B. Ye. Kosior (Moscow): Bending of continuous plates of variable thickness.

141. L. M. Kurzin (Moscow): The effect of aging and shrinkage on the creep of concrete.

142. L. M. Kachanov (Leningrad): On the time of rupture in creep.

143. L. M. Kachanov (Leningrad): On some variational principles in the theory of plasticity.

144. L. A. Galin (Moscow): A generalization of Lame's theorem for elastic deformations.

145. A. Yu. Ishlinskiy (Moscow): Some generalizations of the formulation of dynamic and electrodynamic contact problems and methods for their solution.

146. A. Yu. Ishlinskiy (Moscow): On the elastic equilibrium of thin plates.

147. L. I. Sedov (Leningrad): On the flow of a visco-plastic media in a cone.

148. L. I. Sedov (Leningrad): On the elastic equilibrium of thin, infinite orthotropic plates.

149. L. V. Kovalev (Kharkov): Study of the influence surface for the intensity of the bending moment in thin plates and shells.

150. A. P. Filin, V. A. Kovalchuk (Kiev): Buckling stability of orthotropic cylindrical shells in a three-dimensional deformation field.

151. N. Dinnik (Kiev): Dynamic stability of cylindrical and spherical shells.

152. V. D. Kalner (Perm): Elastic stability and post-buckling behavior.

153. A. A. Ilyushin (Moscow): On the theory of thermal stresses in viscoelastic structures.

154. A. A. Ilyushin (Moscow): Strength and plasticity

155. R. G. Saifullin (Kazan): The design of flexible plates and beams on elastic foundations.

156. N. A. Kilchevskiy (Kiev): Bending of rectangular shallow shells with slender ribs.

157. N. A. Lukasiak (Kiev): On the solution of the nonlinear algebraic equations of shell theory.

158. G. Gerdzhikov, P. M. Varvakovskiy (Leningrad): The one dimensional problem of the establishment of a nonlinearly viscous medium possessing weight and variable water permeability.

159. A. S. Vasilenkovskiy (Kharkov): The elastic equilibrium of orthotropic plate with a finite number of elliptical holes.

160. Zbigniew Kowalski (Cracow), L. F. Kruszewski (Moscow): Rheological phenomena in dry friction.

161. Ya. M. Grigorenko (Kiev): Lateral stability of coupled arches with double curvature.

162. A. I. Rusakov (Leningrad): [illegible] the theory of plane plastic flows.

163. V. M. Entelis, L. I. Kuzina (Moscow): Propagation of flexible, visco-plastic waves in bars.

164. V. D. Potapov (Tbilisi): The investigation of contact problems in the theory of elasticity by the method of singular integral equations.

165. L. I. Sedov (Moscow): The investigation of the determination of media by the body method.

166. A. Lewandowski (Gdańsk): Application of the maximum virtual principle to some problems of the theory of elastic-plastic plates.

167. B. M. Lurt (Moscow): The investigation of rheological properties of plastic plastisols.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

Kopey, A. A.

Increased wear resistance and quality of cotton fabrics. A. A. Kopey (*Tekstil. Prom.*, 1954, 14, No. 10, 31—33).—Monochloro-urea, a new reagent for bleaching cellulose and cellulose hydrate fibres, was found more stable than NaClO solutions; it damages the cellulose much less, even when using solutions with 4—8 g./l. of active chlorine. A new finishing agent for cellulosic fabrics is also reported, which is prepared by introducing bleached cotton fly or regenerated cellulose waste gradually into Na zincate containing 90—100 g./l. of NaOH and 20—25 g./l. of ZnO, the mixture being mechanically stirred and cooled at −5° to +5° for 1½—2 hr. The solution obtained is transparent and homogeneous and does not contain undissolved fibres. For finishing, solutions containing 1·5—3% of cellulose are applied to the fabric at temp. > 40—50°; the impregnated fabric is then immersed in an acid bath to coagulate the finishing agent, and rinsed. Condensation of the finish can be obtained by treating the fabric with hot water (60—80°) and also with conc. alkali solution. In this way, the application of the finish can be combined with mercerisation to obtain a better effect and to increase the wear resistance of the fabric by 25—30%.

J. Text. Inst. (R.B.C.).

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KOPEYCHIKOV, Vladimir Vladimirovich

PRAVOVYYE AKTY MESTNYKH ORGANOV GOSUDARSTVENNOY VLASTI I UPRAVLENIYA MOSKVA, GOSYURIZDAT, 1956. 109 p. BIBLIOGRAPHICAL FOOTNOTES.

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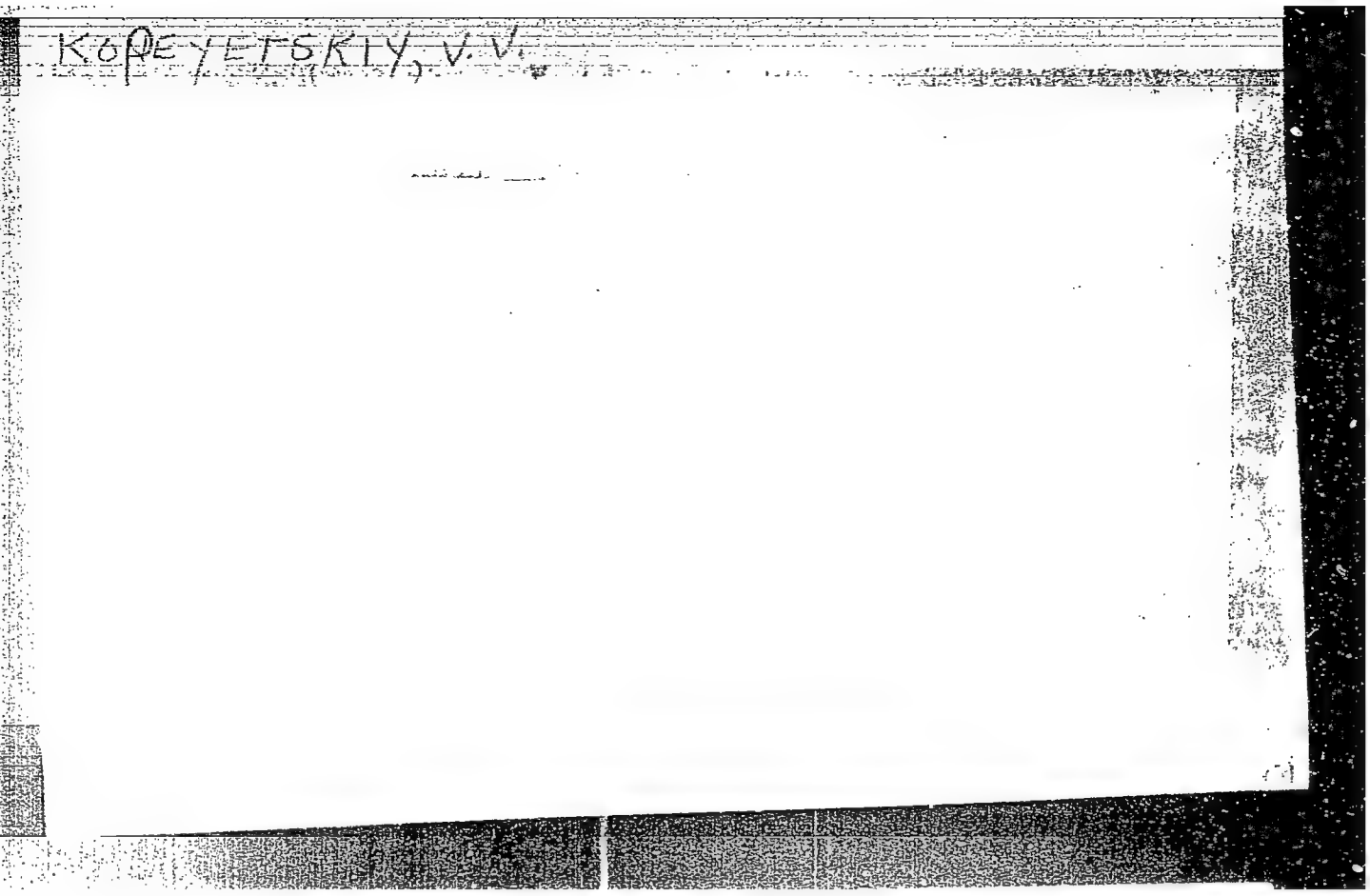
"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7



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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPYTSKIY, Valentin Vasil'yevich; LAVRENT'YEV, V.M., otvetstvennyy redaktor; [illegible], redaktor; KOMOLOVA, V.M., tekhnicheskiy redaktor

[Hydrodynamics of a screw propeller in a tube of circular cross section] Gidrodinamika vinta v trube krugovogo secheniia. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl., 1956. 139 p. (MLRA 10:1)
(Propellers)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

Kopeyetskiy, V.V.

SOV/124-58-5-5403

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 64 (USSR)

AUTHOR: Kopeyetskiy, V.V.

TITLE: On the Derivation of a Formula for the Bracing of a Propulsor According to the Rankine-Froude Theory (K vyvodu formuly dlya upora dvizhitelya v teorii Rankina - Fruda)

PERIODICAL: Tr. Leningr. korablestroit. in-ta, 1955, Nr 18, pp 99-104

ABSTRACT: It is demonstrated that the Rankine-Froude formula can be derived from the momentum theorem.

Reviewer's name not given

1. Impellers--Theory 2. Mechanics 3. Mathematics

Card 1/1

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPEYETSKIY, V.V.

"Velocity Fields Arising as a Result of Light Propeller Loading."

report presented at the 11th Annual Scientific Technical Conference on Ship Theory, organized by the Central Administration of the Scientific-Technical Society of the Shipbuilding Industry, 13-15 December 1960.

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPEYETSKIY, V.V.

New way to check the design of a propeller screw according to the vortex theory. Trudy LKI no.26:71-81 '59. (MIRA 14:9)

1. Kafedra teorii korablya Leningradskogo korablestroitel'nogo instituta.

(Propellers)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KULIKOV, Sergey Vasil'yevich; KHRAMKIN, Mikhail Fedorovich;
DIYEV, B.F., kand. tekhn. nauk, retsenzent;
KOPEYETSKIY, V.V., kand. tekhn. nauk, retsenzent;
RUSETSKIY, A.A., nauchn. red.; SHAKHMOVA, V.M., red.

[Water jet propellers; theory and calculations] Vodometnye dvizhiteli; teoriia i raschet. Leningrad, Sudostroenie, 1965. 271 p. (MIRA 18:3)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

SHPICHINETSKIY, Ye.S.; ROGEL'BERG, I.L.; LUZENBERG, A.A.; GOLOMOLZINA, Yu.A. AGAFONOV, A.K.; Prinimali uchastiye: MIZONOV, V.M.; GALAKTIONOVA, G.A.; GAVRILOVA, N.G.; SAMSONOV, I.P.; KOPEYKA, E.I.; GLEBOV, V.P.

Investigating the darkening of nickel strips during annealing. Trudy Giprotsvetmetobrabotka no.20:125-135 '61. (MIRA 15:2)
(Nickel--Heat treatment) (Annealing of metals)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPEYKA, L.

Reduce labor expenditure in every workshift. Mast.ugl.5 no.7: 5-6 Jl '56. (MIRA 9:9)

1.Nachal'nik uchastka shakhty No.1-2 tresta Makeyevugol'.
(Donets Basin--Coal mines and mining)(Coal mining machinery)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

LOZHKOMOYEVA, A.D.; TRESTMAN, A.G.; LEONT'YEVA, R.S., mladshiy nauchnyy sotrudnik; PODOLYAN, A.F.; TRET'YAKOVA, O.I.; Prinimali uchastiye: PAVLOVA, I.A., inzh.; GORYACHEVA, G.A., starshiy tekhnik; SELIVERSTOVA, Z.P., starshiy tekhnik; FEDOSOVA, M.I., tekhnik; GORSHKOVA, M.I., tekhnik; KOPEYKA, V.K., tekhnik; TIMOFEYEVA, V.F., tekhnik; KOSIMOVA, Z.I., tekhnik. GONCHAROV, Ye.P., otv. red.; USHAKOVA, T.V., red.; SERGEYEV, A.N., tekhn.red.

[Agroclimatic reference book on the Tajik S.S.R.] Agroklimaticheskii spravochnik po Tadzhikskoi SSR. Leningrad, Gidrometeor. izd-vo, 1959. 151 p. (MIRA 13:2)

1. Stalinabad. Gidrometeorologicheskaya observatoriya. 2. Stalinabadskaya gidrometeorologicheskaya observatoriya Upravleniya gidrometeorologicheskoy sluzhby Tadzhikskoy SSR (for Lozhkomoyeva, Trestman, Podolyan, Tret'yakova). 3. Institut pochvovedeniya AN Tadzhikskoy SSR (for Leont'yeva).
(Tajikistan--Crops and climate)

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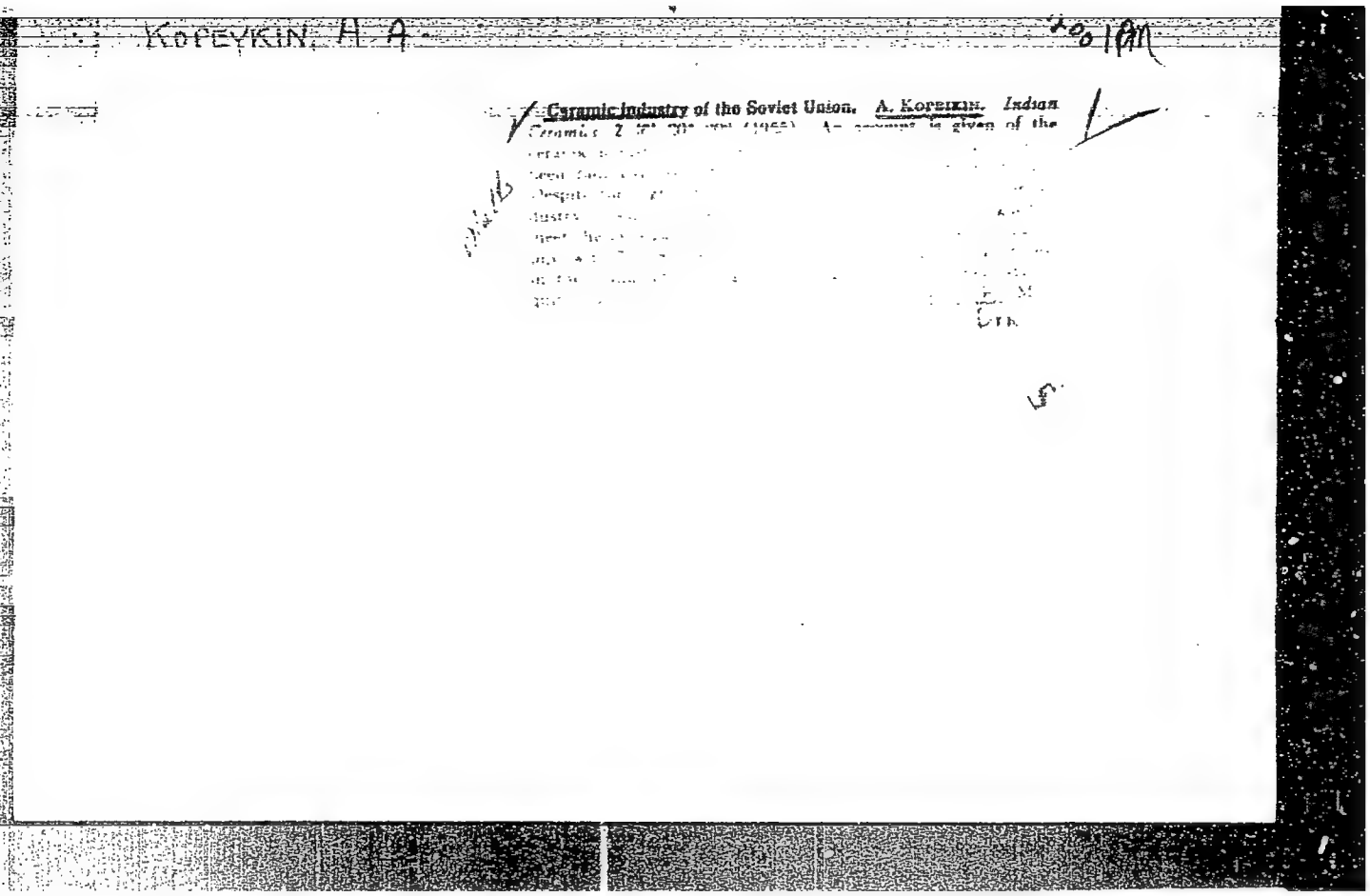

KOPEYKIN, N. A.

Ceramic Industry of the Soviet Union. A. Kopeikin. *Indian*

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPEYKIN, A.A.

KOPEYKIN, A.A.; RAKHVARGER, Ye.L.

The achievements of science should be put at the disposal of industry. Stek.i ker. 12 no.8:13-18 Ag'55. (MLRA 8:11)
(Ceramic industries)

APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7"

"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

KOPEYKIN, A.A.

USSR/Chemical Technology -- Chemical Products and Their Application. Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1626

Author: Kopeykin, A. A., and Fedorova, T. Kh.

Institution: None

Title: The Effect of Composition on the Firing Properties of Semi-Porcelains

Original Periodical: Steklo i keramika, 1956, No 5, 13-15

Abstract: Semiporcelains containing large amounts of argillaceous materials (50-60%) are characterized by low expansion coefficients (EC) of the body (5.26-4.46 x 10^{-6}). Semiporcelains containing 40-45% argillaceous materials have a higher body EC (5.83-6.31 x 10^{-6}). At constant argillaceous content the substitution of feldspar for silica sand lowers the EC of the body. A reduction in the amount of argillaceous material by raising the quartz content by 2, 7, and 17% leads to an increase in the EC from 5.06 x 10^{-6} to 6.25 x 10^{-6}. It is more

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USSR/Chemical Technology -- Chemical Products and Their Application. Silicates. Glass. Ceramics. Binders, I-9

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1626

Abstract: convenient to lower the argillaceous materials content by the addition of feldspar, inasmuch as the addition of quartz frequently leads to "cold cracking."

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Kopeykin, A

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KOPEYKIN, A.A.

Utilizing internal potentialities in ceramic tile industries. Stek. i ker. 14 no.3:21-23 Mr '57. (MLRA 10:4)

1. Nauchno-issledovatel'skiy institut stroitel'noy keramiki. (Tiles) (Ceramic industries--Equipment and supplies)

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KOPEYKIN, A. A. (Engr.) of the Scientific Research Institute Stroykeramiki

"Modern Requirements in Structural Ceramics and the Organisation of Flow-production".

report presented at the First Technical Conference on the Introduction of New Techniques into the Electrical Insulator Industry, 12-15 Mar 1958, State Sci. Tech. Committee of Council of Ministers of USSR.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

72-58-5-4/18

AUTHOR: Kopeykin, A. A.

TITLE: Urgent Problems of the Further Development of Ceramics' Industry (Neotlozhnyye voprosy dal'neyshego razvitiya promyshlennosti stroitel'noy keramiki). From a Speech at the Meeting of Building Specialists (Iz vystupleniya na soveshchanii stroiteley)

PERIODICAL: Steklo i Keramika, 1958, Nr 5, pp 12-14, (USSR)

ABSTRACT: The first and most important problem must be seen in the selection of the type and the construction of furnaces for firing , as these are the basis for ceramics production. The batch types operating at present must be replaced by tunnel kilns. The firing cycle in the Kirov factory is 32 hours; in periodic types it is, however, 93 hours. In batch types of the Slavuta factory 2420 kg of ideal fuel was consumed, and in the tunnel kilns of the Kirov factory this figure was 1220 kg per ton of products. In the years 1953-1954 the factories Katuarovskiy, Kuchinskiy, Smolenskiy, Voronezhskiy, Khar'kovskiy, L'vovskiy and Tbilisskiy were put into operation. The projects provided a special technology as well as an output of 20% colored tiles. In reality all this never left

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the stage of blue print. Instead of muffle-tunnel kilns those tunnel kilns with open flame were put up. As a result of this the firing is carried only in saggers and only white tiles of low quality are produced. The share of manual labor is 70%, the waste figures are high etc. This problem has been discussed in the course of many years and the decisions made were in favor of muffle- and electric tunnel kilns: such decisions were made by: the Tekhsovet MPSM USSR (July 1956), the All-Union Conference of Ceramics at Shchekino (April 1957), the Conference of Ceramists in Ukrainia and the MPSM of the Ukrainian SSR (1956-1957) and finally by the MPSM College of the USSR (May 1957). Further discussion might be futile here. At present the practical execution of these decisions must be arranged. This is one of the urgent problems. No less important is the problem of the creation of a new type of high-capacity ceramics factory operating with concentrated raw material as well as with supplied finished powder mixtures in collaboration with other branches of industry. The preparation of the raw materials should take place at their places of production; the production of dyes should

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Urgent Problems of the Further Development of Ceramics' Industry. From a Speech at the Meeting of Building Specialists 72-58-5-4/18

take place in special factories in order to relieve the ceramics factories and to obtain the raw materials and dyes of better quality and at cheaper prices; this is also practiced abroad. The author mentions as an example, the American ceramics industry which produces 5-times as much as the Russian with only twice as much labor as the USSR; this is said to be the result of specialized production and extensive collaboration. According to a calculation the transport costs of the raw material in the case of its concentration at the places of production could be reduced by 25-30%, the costs of raw material preparation by 30% and the general costs of ceramics factories for raw materials by 20%. The most important problem of the building-ceramics industry is the widening of the assortment of ceramic casings, as well as the use of local clay for their production. The composition of the glaze as well as the technological parameters were worked out by the NIIstroykeramika Institute. The experimental plant of the institute has aquired great experience in the mass production of colored and decorated tiles. It is only that the factories must build small-scale electric furnaces of

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Urgent Problems of the Further Development of Ceramics' Industry. From a Speech at the Meeting of Building Specialists 72-58-5-4/18

modern design. The experiment of the NIIstroykeramika in 1958 showed that from the clays used in the tile works of the Economic Councils of Kalinino, Gor'kiy and Moscow, high-quality and cheap colored tiles can be produced.

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"APPROVED FOR RELEASE: 03/13/2001 CIA-RDP86-00513R000824510013-7

AUTHOR: Kopeykin, A. A. SOV/72-58-10-4/18

TITLE: Influence Exercised by Additions of Fluxing Agents Upon Structure and Properties of Semi-Porcelain (Vliyaniye flyusuyushchikh dobavok na strukturu i svoystva polufarfora)

PERIODICAL: Steklo i keramika, 1958, Nr 10, pp 18-22 (USSR)

ABSTRACT: Besides feldspar dolomite, nepheline-syenite, mariupolite, and spodumene were used as fluxing agents. Already in 1932, A. Ye. Fersman, Member, Academy of Sciences, USSR, and, during World War II, Professor I. I. Kitaygorodskiy pointed to nepheline syenite. V. M. Permyakov and Z. A. Nosova also underlined in their papers the part they play. The properties of faience, semi-porcelain and porcelain masses depend to a considerable extent on the structure of the products as can be seen from the papers of P. A. Zemyatchenskiy (1924), I. F. Ponomarev (1929), A. M. Sokolov (1932), N. M. Chervinskiy (1941), V. V. Lapin (1948), P. P. Budnikov (1951), D. S. Belyankin and others. Petrographic investigations were carried out by the senior scientific cooperator of NIIstroykeramika, M. Ye. Yakovleva, as well as X-ray investigations by the junior scientific worker T.S. Butt.

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Influence Exercised by Additions of Fluxing Agents Upon Structure and Properties of Semi-Porcelain

(Ref 1). In table 1 the results for 4 optimal masses are given. Table 2 shows the results of the phase composition of 4 optimal masses with different content of fluxing agents. A substitution of another fluxing agent for feldspar in semi-porcelain permits the reduction of burning temperature and porosity of the products. Samples manufactured from masses with various fluxing agents, have the same heat-resistance and mechanical stability, irrespective of the burning temperature (Table 3). There are 3 tables.

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SOV/72-58-11-9/15

AUTHOR: Kopeykin, A. A.

TITLE: Semiporcelain Obtained at Reduced Burning Temperature (Polufarfor, poluchayemyy pri ponizhennoy temperature obzhiga)

PERIODICAL: Steklo i keramika, 1958, Nr 11, pp 28 - 33 (USSR)

ABSTRACT: The plan for the years 1959-1965 provides for the development and introduction of new body- and glaze formulae for reduced burning temperatures. The investigations of the NII Stroykeramika showed that this is possible for semiporcelain productions, and even results in an improvement in quality. Table 1 shows the weight compositions and table 2 shows the chemical composition of the initial materials. In table 3 the physical properties of the experimental bodies are listed. Furthermore a series of different experimental bodies is described. In figure 1 the dependence of the coefficient of thermal expansion upon the feldspar content is illustrated. Figure 2 shows the influence of the addition of dolomite, whereby the burning temperature falls somewhat. The substitution of feldspar by spodumene and ayenite reduced the burning temperature even further (Figs 3, 4, 5

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15(2)
AUTHOR: Kopeykin, A. A.

SOV/72-58-12-10/23

TITLE: Exhibition of Products and Equipment of the Italian Ceramics Industry (Vystavka izdeliy i oborudovaniya keramicheskoy promyshlennosti Italii)

PERIODICAL: Steklo i keramika, 1958, 15 Nr 12, pp 34- 37 (USSR)

ABSTRACT: A group of Soviet experts visited this exhibition in Vincenza in 1957. Their attention was specially attracted by small tiles to be employed for the lining of tall buildings (Fig 1), 2 hydraulic presses (Figs 2 and 3), an electric 2-tunnel kiln for burning mosaic tiles (Fig 4), an electric 3-tunnel kiln for the burning of faience and procelain without molds (Fig 5), an annular tunnel kiln featuring a rotating bottom and a common feeding and unloading installation (Fig 6). The author stated that this exhibition gave evidence of a remarkable technical post-war modernization of Italian ceramics industry, with the latest achievements in this field being introduced. There are 6 figures.

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15 (2)

AUTHOR: Kopeykin, A. A. SOV/72-59-6-1/18

TITLE: The Ceramic Industry Requires Modern Muffle Furnaces and Electrical Tunnel Kilns (Keramicheskoy promyshlennosti nuzhny sovremennyye mufel'nyye i elektricheskiye tunnel'nyye pechi)

PERIODICAL: Steklo i keramika, 1959, Nr 6, pp 1-7 (USSR)

ABSTRACT: In the present paper the author deals with the types of drying and burning kilns employed in the ceramic industry of the USSR. Periodically operated kilns were used up to the fifth Five-year-plan. Towards the end of the fifth Five-year-plan. 90 % of tiles and 46 % of sanitary ceramics were burned in tunnel kilns, the burning cycle of which is almost three times shorter and the output three times higher, as was practically proved by the Kirov Works for sanitary faience in 1958. In 1958 experts of the Gosstroy USSR and of the Giprostroymaterialy visited foreign works of the ceramic industry and found a variety of types of kilns used that were adapted to the characteristics of the various productions. These experiences however were not taken into account for the Soviet practice and the new tile works at Katuar, Kuchinsk, Smolensk, Tbilisi, Voronezh, Khar'kov, L'vov were further on

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equipped with the Giprostroymaterialy type flame furnaces in 1953 to 1955. These works were referred to by the "Stroitel'naya gazeta" newspaper as "new works using old-fashion technology". The coordinating conference of the functionaries of the ceramic tile industry held in December of last year at the Institut novykh stroitel'nykh materialov ASiA SSSR (Institute of Modern Building Materials, [illegible] USSR) requested the Gosstroy USSR and the Gosplan USSR to prohibit further erection of Giprostroymaterial type kilns for new tile works. The author of this paper laid special stress on the following three claims which according to his opinion should be respected when erecting further burning kilns for tiles: the burning temperature curve regulated in the kiln must be maintained; the kiln should be operated in a gas ambient free from combustion products, in which connection the studies of Z. A. Nosova and M. Ye. Yakovleva were mentioned (Footnote 1); a moldless burning of the products ought to be made possible. With the elimination of the calibrating devices in the production of the Soviet tile factories the necessity arose of assorting tiles according to their dimensions thus

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leading the Trust Mosotdelstroy Nr 2 to employ about 600 workers for this purpose and the apparent economy turned out to be a waste of State finances. The muffle furnaces and tunnel kilns allow a moldless burning of products, which includes considerable advantages and signifies a reduction of the cost price up to 25%. Figures 1 to 4 show the setting of tiles in caskets, molds and furnace lorries for burning. Figures 5 to 7 show the setting of sanitary-technical articles in muffle and electrical furnaces. Figure 8 shows a multi-channel muffle furnace and figure 9 a three-channel type electrical furnace. There are 9 figures and 3 references, 2 of which are Soviet.

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